A RAND NOTE

Utilization and Costs in the CHAMPUS Reform Initiative: Preliminary Results for April–September 1989

Lloyd Dixon, Susan Hosek, Darlene Blake, Suzanne Polich, Deborah Wesley

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Prepared for the
Assistant Secretary of Defense
(Health Affairs)

RAND

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PREFACE

In an attempt to improve health care delivery and contain cost growth, the Department of Defense (DoD) in 1987 proposed the CHAMPUS Reform Initiative (CRI). Before the CRI could be implemented nationwide, however, Congress required that a demonstration be performed to test the initiative's feasibility and cost-effectiveness. In February 1988, the DoD awarded a contract to Foundation Health Corporation (FHC) to conduct the demonstration in California and Hawaii. In authorizing the demonstration, Congress also mandated an independent evaluation of the CRI, which RAND was asked to perform. This Note presents preliminary utilization and cost estimates for a six-month period during the demonstration. It is the second preliminary report prepared to support a DoD report to Congress on the demonstration. The first, S. Hosek et al., *Preliminary Results from an Evaluation of the CHAMPUS Reform Initiative,* N-3069-HA, January 1990, described the operations of the major CRI programs and presented more limited cost estimates for the program than the estimates provided here.

The evaluation of the CHAMPUS demonstration programs project is being conducted for the Assistant Secretary of Defense (Health Affairs) by RAND's Health Sciences Program and Defense Manpower Research Center; the latter is part of the National Defense Research Institute, a federally funded research and development center sponsored by the Office of the Secretary of Defense and the Joint Staff.

SUMMARY

This Note presents interim results from an evaluation of the CHAMPUS Reform Initiative (CRI), which was implemented in August 1988 throughout California and Hawaii to demonstrate major reforms of the military health care system. The major features of CRI include:

- A set price paid by DoD to a CRI contractor for all civilian health care services provided to CHAMPUS beneficiaries residing in California and Hawaii, subject to limits on contractor losses and profits.
- Two alternatives to the current CHAMPUS program based on a common network of selected civilian providers: an enrollment option similar to a health maintenance organization (HMO) and an optional preferred provider organization (PPO).
- CHAMPUS Service Centers to provide beneficiary assistance, including a Health Care Finder for referrals to appropriate civilian providers when care is unavailable in military treatment facilities (MTFs).
- Resource sharing agreements under which the civilian contractor provides, at its cost, resources needed to increase capacity utilization in the MTFs and lower CHAMPUS costs.
- Quality assurance and utilization review programs to ensure provision of high-quality, cost-effective care.

The evaluation is designed to assess the effects of CRI on a broad array of health care outcomes, including overall utilization and costs, beneficiary access to care and satisfaction, and treatment patterns for specific health care conditions. This Note provides preliminary data on health care utilization and costs under the CRI programs compared with those for the standard CHAMPUS programs in place outside the demonstration area. The data are useful for determining whether cost trends differ in the CRI area and, in particular, whether the large administrative cost of this managed care program is being offset by health care cost savings. By comparing matched CRI and non-CRI catchment areas, we control for some of the differences other than the CRI

program itself that might cause differential growth in health care costs. However, we caution that the areas are not perfectly matched and that any differences we observe between CRI and non-CRI areas cannot be reliably attributed to CRI at this interim stage in the evaluation.

CRI focuses on reforming CHAMPUS, which finances civilian health care for many military beneficiaries, but CRI also is designed to alter the provision of care in military health care facilities. In turn, CHAMPUS is affected by changes in the military health care system, whether or not they are caused by CRI. Therefore, in assessing the effects of CRI on utilization and cost, it is important to incorporate changes in the military health care system as well as CHAMPUS. For this interim document, we calculated CHAMPUS utilization and costs from claims records. We then used existing data to adjust the CHAMPUS data for differences between CRI and non-CRI areas in the size of the beneficiary population in each type of area and their utilization of military hospitals and clinics. Since we have identified several potentially important sources of error in the population and military workload data, we present the unadjusted CHAMPUS data as well as the adjusted data and urge caution in the use of the latter until we can either correct for these errors or assess their magnitude.

UNADJUSTED FINDINGS

Using claims data from April through September 1989 and a similar period in 1987, we find that CHAMPUS health care costs in the CRI states declined by 15 percent in nominal dollars. Total program costs, including the large administrative overhead for CRI, increased by 2 percent over the two-year period. In contrast, DoD figures show that CHAMPUS costs in the other 48 states increased by 16 percent.

To control for potentially confounding effects of other factors, including beneficiary and MTF characteristics, we compared a set of matched CRI and non-CRI control areas (ten in each group). In the CRI areas, health care costs *decreased* by 20 percent (4 percent after we adjusted for the much higher CRI administrative overhead), while they *increased* by 13 percent in the control areas. Inpatient costs and utilization dropped sharply in the CRI areas, although decreased CHAMPUS admissions were largely offset by increases in inpatient admissions at military hospitals. CHAMPUS inpatient use increased for active duty dependents at the control sites, but decreased for retired beneficiaries; MTF admissions increased for both groups in these areas. All areas

experienced a decrease in the cost per hospital day, probably as a result of the implementation of prospective payment based on diagnostic related groups (DRGs) in October 1987. The drop in cost per day was considerably larger in the CRI areas (–25 percent in the ten CRI areas versus –10 percent in the control areas); however, we have not yet adjusted these figures for changes in case mix.

Outpatient CHAMPUS costs went up in all areas, but the growth rate was much larger in the control areas. The difference appeared to be largely attributable to a faster rise in the number of users in the control areas.

Finally, mental health care costs and utilization dropped somewhat under CRI while they almost doubled in the control areas. The lower CRI mental health use reflected a drop in the visit rate and cost per visit rather than a decrease in the number of beneficiaries using these services under CHAMPUS.

ADJUSTED FINDINGS

CHAMPUS finances only some of the health care provided by DoD to these beneficiaries; most care is provided through the direct care system of MTFs. The goal of CRI is to improve the cost-effectiveness of the combined CHAMPUS and MTF systems. Therefore, we have carried out some simple calculations, using existing data on MTF costs, to determine the change in total DoD cost per eligible beneficiary in CRI and non-CRI areas.

Adjusting for population and MTF utilization in this manner narrows the CRI area differential that we estimated from the matched comparison. Total per capita costs increased 4 percent in the subset of ten CRI areas, below the 11 percent increase experienced in the ten matching control areas. Total per capita costs increased at the same rate (4 percent) in California and Hawaii and the other 48 states. Since the state-level comparison relies on data from different sources and the areas are not prebalanced, the matched comparison should be more reliable. However, inadequacies in the MTF cost data that we used for both comparisons require that all of these per capita total cost figures be viewed cautiously.

The final evaluation analyses will expand on this interim report by doubling the study period to a full year, adjusting for other differences between CRI and control areas over time, and describing CRI's effects on the use of specific health care services by different beneficiary groups. We will also measure CRI's effects on other outcomes, such as beneficiary access to care and satisfaction.

ACKNOWLEDGMENTS

We gratefully acknowledge the assistance of Richard Barnett, Chief of the Statistics Branch at the Office of CHAMPUS (OCHAMPUS), who answered our many questions about the claims data. Also at OCHAMPUS, Janet Beer and Ronald Hudson provided us with information on administrative costs. Russell Beliveau and Paul Murrell at Foundation Health Corporation (FHC) arranged for prompt responses to our various requests for information and data. In the Office of the Assistant Secretary of Defense for Health Affairs, we would like to thank our two project officers, Colonel Paul DeBree and Lieutenant Colonel Kenneth Kurowski; Lieutenant Colonel David Fant, Director of Coordinated Care Operations; and Lieutenant Colonel Denny Clement, Director of Coordinated Care Support, also provided assistance. Vector Research Inc., the contractors for the Defense Medical Information System, generously helped us retrieve the data we needed from this system.

At RAND, this study was assisted by the on-going research efforts of other project staff members, especially Elizabeth Sloss, Greer Sullivan, and Richard Kravitz. We are especially indebted to Adele Palmer, who reviewed the Note and suggested several important improvements. Finally, we are grateful to Irene Sanchez for preparing the manuscript.

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I. INTRODUCTION

Health care for military beneficiaries—primarily active duty and retired personnel and their dependents—is provided through a dual system: The Army, Navy, and Air Force operate 137 hospitals and numerous clinics in the United States, and this "direct care" system is augmented by CHAMPUS, a traditional health insurance program that reimburses for care primarily provided to nonactive-duty beneficiaries below the age of 65. Most direct care services are free to the beneficiary, while CHAMPUS generally charges a small deductible and copayments of 20 to 25 percent.

The direct care cost for nonactive-duty beneficiaries is difficult to estimate, but CHAMPUS costs have been rising rapidly in recent years and exceeded $3 billion in fiscal year 1990. To contain the cost increases and improve beneficiary satisfaction, the Department of Defense (DoD) has been looking for ways to better integrate the military and civilian systems and to introduce managed-care programs.

In February 1988, the DoD awarded a contract to Foundation Health Corporation (FHC) to conduct a large-scale demonstration of the CHAMPUS Reform Initiative (CRI). CRI was designed to improve beneficiary access to care, improve coordination between military and civilian sources of care, and hold down the rate of increase in costs. The most important features are:

- A set price paid by DoD for all civilian health care services provided to CHAMPUS beneficiaries residing in California and Hawaii, subject to limits on contractor losses and profits.
- Two alternatives to the current CHAMPUS program, based on a common network of selected civilian providers: CHAMPUS Prime, which offers improved coverage for preventive care, substantially reduced cost sharing, and simpler procedures for beneficiaries who enroll in a plan similar to a health maintenance organization (HMO); and CHAMPUS Extra, which offers smaller reductions in cost sharing for beneficiaries who wish to use an optional preferred provider organization (PPO).
- CHAMPUS Service Centers to provide beneficiary assistance, including a Health Care Finder for referrals to appropriate civilian providers when care is

unavailable in military treatment facilities (MTFs). Referrals are made when possible to the provider network.

- Resource sharing agreements under which the civilian contractor provides, at its cost, resources needed to increase capacity utilization in the MTFs and lower CHAMPUS costs.
- Quality assurance and utilization review programs to ensure provision of high-quality, cost-effective care.

The contract covers all CHAMPUS costs incurred by beneficiaries living in the two-state demonstration area, including those incurred through the standard CHAMPUS option. The contractor seeks to lower costs in the two new options and redirect use from the standard option to either the HMO or PPO. CHAMPUS Prime is the new health care option that resembles an HMO to the enrolled beneficiary. In return for obtaining health care only from the MTFs or network providers, the enrollee benefits from lower cost-sharing (e.g., a $5 per visit flat fee) and added coverage (e.g., adult preventive care). The beneficiary's care is obtained through a primary care provider who acts as a "gatekeeper" to specialists; and, when the gatekeeper authorizes specialty care, it must be provided by the MTF if available there. The PPO, CHAMPUS Extra, decreases the standard copayment rate by five percentage points when beneficiaries use network instead of nonnetwork civilian providers. Care provided in both options is subject to utilization review, including authorization of inpatient and some outpatient care.

If CRI works as intended, the additional costs of the enhanced benefits in Prime and Extra are more than offset by savings from several sources:

- Utilization review for Prime enrollees (including the gatekeeper function), for Extra users, and for all users of mental health services.
- Discounts granted by network physicians to Prime enrollees and Extra users.
- Maximum use of the MTFs for outpatient as well as inpatient care through Health Care Finder referrals and resource sharing.[1]

[1]Appendix A reproduces portions of our first report that describe the complex CRI program in more detail.

The CRI demonstration project was initiated in California and Hawaii in August 1988. In authorizing the demonstration, Congress mandated an independent evaluation to cover at least the first year of operation. During the first eight months of operation, the contractors' claims processing system functioned poorly and an accurate claims history is not available for that period. Therefore, the evaluation period has been established as April 1989 through March 1990. This Note presents preliminary health care utilization and cost data from the first half of the evaluation period, April through September 1989, and from a pre-CRI comparison period, April through September 1987. We have calculated utilization and costs for CHAMPUS alone and for the MTFs and CHAMPUS combined. These data cover hospital and professional services and include total and per CHAMPUS user or per capita costs for all services, inpatient costs, outpatient costs, number of admissions, length of stay, number of visits, cost per inpatient day, and cost per visit. Similar data are also presented for mental health care services.

This is the second preliminary report on the CRI experience. An earlier report (Hosek et al., 1990) presented an overview of CRI operations more than a year after the program started and estimates of the differential cost growth under CRI for a more limited three-month period, April through June 1989. The major findings were:

- Beneficiary participation in the two new options, CHAMPUS Prime and Extra, increased steadily during the first year. By spring 1989, 32 percent of the payments were for participants in these options.
- The provider network created for the Prime and Extra options appeared to be at least adequate in almost all areas with a large population of beneficiaries.
- The discounted fees negotiated with most specialties in the network for common types of visits or procedures ranged from 80 to 90 percent of the average CHAMPUS payment for the same visits and procedures before CRI.
- Implementation of resource sharing was delayed by the need for contract revisions, and an assessment of this program element was not possible at that time.
- Most of the other CRI elements—Health Care Finder; marketing; utilization management; quality assurance; and beneficiary, provider, and MTF relations—experienced problems of some sort, but efforts have been made to solve the problems as they arise.

- Between April–June 1988 (pre-CRI) and April–June 1989 (post-CRI), the CHAMPUS health care and administrative costs for California and Hawaii rose 4.6 percent. Other areas experienced a 17 percent increase, and we predicted that this pattern of increase would have implied a 22 percent increase in California and Hawaii.
- Health care costs for all beneficiaries in the two states actually declined by 9 percent overall, and mental health costs decreased by about one-third.

This second Note emphasizes utilization and costs because of the particular concern among policymakers with CHAMPUS program costs. It improves upon our earlier analysis in several important ways. First, the data we used were extracted from standard OCHAMPUS files, so they have been edited; in addition, the CRI claims processing systems that generated these records were functioning better and the data were extracted well after the study period, allowing time for denied claims to be resubmitted.[2] Second, the CRI study period has been expanded from three months to six months. Third, we have been able to extract more information from the records regarding both utilization and costs. Fourth, we were able this time to incorporate the basic design of the evaluation, which establishes a "quasi-experiment" in ten matched pairs of CRI and non-CRI catchment areas as a way of controlling for non-CRI factors in estimating the relative changes in utilization and costs under CRI. Finally, we also provide data on total system (direct care and CHAMPUS) utilization and costs per beneficiary. These data are conceptually superior to the aggregate CHAMPUS data because they adjust for any differential changes in the size of the beneficiary population and MTF utilization between CRI and non-CRI areas. However, since we identified some potentially important shortcomings in the population and MTF data, we report both the unadjusted and adjusted data and caution that the per capita data are subject to error.

To put the results for these catchment areas in context, we also present similar data for the full two-state demonstration area (California and Hawaii) and the other 48 states. This comparison has not been adjusted for any differences between the two

[2]In the first Note, post-CRI costs were calculated from claims records provided directly by the contractor, and special efforts were needed to process the backlog of pending claims and estimate payment adjustments that had not been entered into the record system. We were unable to estimate the volume of unsubmitted or resubmittable claims.

groups of states; in addition the data come from different sources. Therefore, we emphasize the matched pair results in our conclusions.

Nevertheless, these findings are still preliminary. During FY 1991, we will incorporate information from a post-CRI beneficiary survey (now in the field) and conduct analyses designed to adjust for remaining differences in the matched pairs of catchment areas, where possible. The results will be presented in a series of documents that will address the effects of CRI on:

- Beneficiary enrollment and source of health care (military versus civilian) decisions.
- Access to and continuity of care.
- Overall frequency of inpatient and outpatient health care use.
- Frequency of use for specific diagnoses, procedures, and care settings (e.g., emergency room).
- Government and beneficiary costs.
- Beneficiary satisfaction.
- Military physician satisfaction.

Section II describes the data and methods we used. The results are presented in Sec. III. Section IV concludes with a summary of our findings and compares them with the findings from our previous study.

II. METHODS AND DATA

STRUCTURE OF EVALUATION

The CRI evaluation has been designed to resemble a controlled and prebalanced social quasi-experiment (Hosek et al., 1987). The DoD predetermined the demonstration area, so a full experimental design with joint selection of experimental and control sites was not possible. Instead, we selected ten MTF catchment areas from the 18 in California and Hawaii and one additional large clinic area in California and matched each with a "control area" in another state by systematically comparing certain population and health care variables and in consultation with service personnel. The variables included:

- Size and service affiliation of MTF.
- Beneficiary population—size and mix.
- MTF and CHAMPUS outpatient and inpatient use rates.
- Local characteristics—urban versus rural, climate, prevalence of alternative health care systems.

The balancing was intended to match the demonstration and control areas on many important variables, so that observed differences in outcomes will be attributable to differences between CRI and standard CHAMPUS. However, our ability to achieve a balanced design was limited because the demonstration sites were preselected, data for balancing were limited, and the number of potential matches often was small. The demonstration and control sites studied in this Note are shown in Table 1. Port Hueneme and Quantico are the two clinic catchment areas. Subsequent reports will also include Travis and Keesler Air Force Base areas in the matched comparisons. They were omitted here because data for Keesler were incomplete, but Travis is included in the figures for all of California and Hawaii. In addition, we have excluded mental health use for the San Diego-Portsmouth pair; Portsmouth is the site of a prepaid mental health

Table 1

CRI DEMONSTRATION AND CONTROL SITES

Service	CRI Site	Control Site
Army	Fort Ord (CA)	Fort Hood (TX)
	Tripler (HI)	Madigan (WA)
Navy	Long Beach (CA)	Orlando (FL)
	Camp Pendleton (CA)	Charleston (SC)
	San Diego (CA)	Portsmouth (VA)
	Port Hueneme (CA)	Quantico (VA)
Air Force	Beale (CA)	Dover (DE)
	March (CA)	Carswell (TX)
	Mather (CA)	Homestead (FL)
	Travis (CA)	Keesler (MS)
	Vandenberg (CA)	Shaw (SC)

demonstration program; we do not have comparable claims-based data on mental health care use there.[1]

DATA SOURCES

The major source of data for this report is the Quick Response Data File (QRDF) maintained at OCHAMPUS. This file contains a record for every claim processed, derived from records submitted by the regional fiscal intermediaries and, for CRI, by FHC. We extracted from this file all records for services provided to beneficiaries residing in any part of California and Hawaii and the ten control areas, during the months of April through September in 1987 (pre-CRI) and 1989 (post-CRI). We included only those 1987 claims received by the fiscal intermediary by December 31, 1987, and for 1989 claims by December 31, 1989. By limiting the data set to claims received by December, we hoped to increase the likelihood that the claims had been processed and entered into the QRDF.[2] Below we describe our efforts to assess and adjust for file completion. Claims for beneficiaries living outside the demonstration area who received services in the demonstration area are excluded because these services are not covered

[1]Other potential control sites to match with San Diego also had deficiencies.

[2]Claims are first submitted by the provider or beneficiary to the fiscal intermediary or CRI contractor, who then forwards records of the paid claims to OCHAMPUS. Denied claims are not forwarded and are therefore not included in the QRDF.

by the CRI contract. However, claims for services provided outside the demonstration area to California or Hawaii residents are included because they are covered by the CRI contract.

The data file we used was extracted from QRDF records received by the end of April 1990, leaving a seven month "runoff" period. As we discuss more fully below, despite the long runoff period, differences remain in the completion rates of CRI and non-CRI claims. We have adjusted the cost figures to correct for these differences.[3]

From the claims records we calculate: (1) the number of beneficiaries who used CHAMPUS; (2) their levels of health care utilization—admissions, inpatient days, visits; and (3) program costs.[4] Administrative costs for CRI and the costs of procuring MTF resources under the resource sharing program were provided to us by FHC.[5] We obtained data on pre-CRI and control area administrative costs from OCHAMPUS.[6] Claims processing is included in administrative payments under the CRI contract. The final cost component is for implementing changes in the CHAMPUS program; the fiscal intermediaries negotiate with OCHAMPUS their reimbursement for implementing the "change orders." FHC and OCHAMPUS have not settled on the costs of implementing these change orders in CRI, so OCHAMPUS provided us with estimates for 1988–89. By prorating over the time period, we estimated these costs to be approximately $1,000,000 for April through September 1989. Since these costs are fairly small and not final, we have not included them in our total cost figures.

We obtained cost and utilization data for the non-CRI states from the Defense Medical Information System (DMIS). Unfortunately, we were unable to extract data for the six-month study periods from DMIS or other available sources. Therefore, we present data for the complete 1987 and 1989 fiscal years. These estimates also differ from those we calculated from the QRDF because they are based on data extracted three

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[3]Our final evaluation reports will compare a full year of CRI data (April 1989–March 1990) with the same months in 1987–88.

[4]Our final reports will also measure beneficiary costs.

[5]Included in the administrative costs for CRI are the associated profits and the costs of enrollment, network development, claims processing, utilization and quality management, CHAMPUS Service Centers, and other new CRI programs.

[6]CHAMPUS pays its fiscal intermediaries a fixed amount per claim processed. These figures are the averages for the five fiscal intermediaries under contract in each year. The contracts, which cover different regions of the country, are reawarded every five years, and competition for this business has driven the contracted price down steadily for at least ten years.

months after the end of the period instead of seven months.[7] As we state elsewhere, these figures are included primarily to place the demonstration and control area results in context. Because of the different data sources and the lack of any adjustment for other factors (e.g., mix of catchment and noncatchment areas, beneficiary composition, the size of and services provided by the MTFs, and CHAMPUS and MTF use rates and costs), costs for the other states do not necessarily indicate what California and Hawaii costs would have been without CRI.

To calculate per capita total (civilian and military) utilization and cost figures, we also obtained data on the size of the beneficiary population and the use of military health care facilities from DMIS. As we discuss in the following section, these data contain some errors or are reported at a more aggregate level than the level we needed. Where possible, we will correct some of these data shortcomings in our final reports.

Since CHAMPUS allows claims to be filed up to two years after the date of service and processing is time-consuming, a complete file of claims for services rendered during a given time period is not available until some time later. There are several reasons to expect that the flow of claims might be different under the CRI program than under standard CHAMPUS. First, CRI establishes a network of physicians who expect an increasing volume of CHAMPUS business, are required to submit the claims themselves, and are promised prompt payment by the contractor. One might expect the claims for these providers to come in more quickly. However, the extensive utilization review program also introduced by CRI might induce new delays, especially for claims that are pending for further information or first denied and subsequently paid upon resubmission. In actuality, the serious problems encountered early in processing CRI network claims clearly slowed the flow of claims data to OCHAMPUS. In April 1989, the beginning of the period under study, FHC switched to a subcontractor for network claims processing. The transition slowed claims processing at first, but our data suggest that processing times were similar by the end of our study period.

The completeness of the claims data was also affected by the decision to implement a new OCHAMPUS record format with all new contracts, including the CRI contract. The new Health Care Service Record (HCSR) is more complicated and is subjected to strict checks before the record can be added to the file. The HCSRs for CRI

[7]Although both DMIS and our figures are for services provided during the study period, there may be other differences in calculation methods.

(and for other new contracts) have failed to pass the checks at a higher rate and therefore may enter the QRDF more slowly than standard CHAMPUS claims.

We conducted an analysis designed to identify differences in CRI and non-CRI completion rates so that we could correct for them. The completion rate is the percent of the actual volume of services provided during a period of time that has entered the data file at any later time. To assess the completion rates of our data files, we measured the flow of claims to the processor and then through processing to OCHAMPUS in 1987 and 1989 for the CRI and control areas. We found that the claims and processing flows were the same in the demonstration and control areas in 1987 and in the control areas in 1989. However, the CRI claims in 1989 show a different pattern. As an example, Fig. 1 compares the rates at which outpatient claims arrived for processing from the ten demonstration and ten control sites in 1989. Plotted are the average percentage increases in the dollar value of claims (program cost) received for processing in each month after the service was provided—i.e., the dollar value of claims received in each month divided by the total value of claims received in all earlier months. To calculate the first data

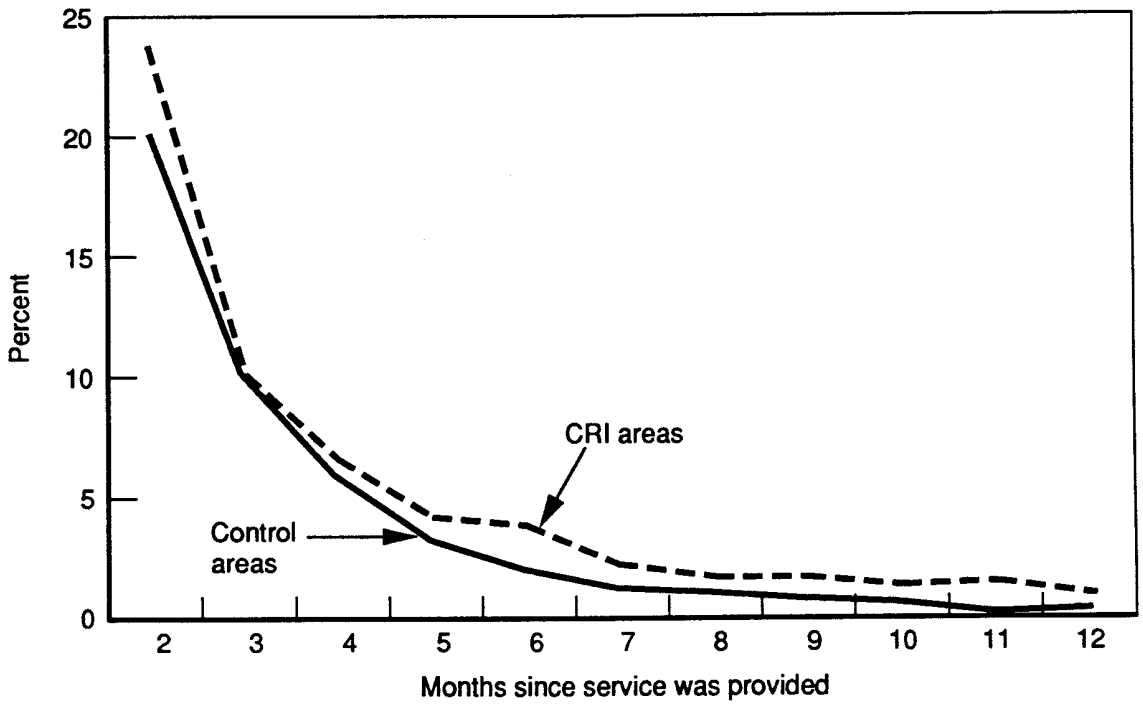

Fig. 1—Arrival of April–September 1989 outpatient claims for processing in demonstration and control areas

point in each of the two lines, we took the average of the percentage increase in claims costs received in the second month after the services were provided. The next data point is the average percentage increase in the fourth month, and so on.

The last five data points are based on claims for a decreasing number of months. For example, we can observe the arrival rate after nine months only for services provided in May through September; for the twelfth month, we have information only for services provided in April. Since the CRI network claims were transferred to a new processing system in April 1989, the entry of newly arrived claims initially may have been slow. There is some indication that the claims from the late summer months arrived for final processing at a faster rate than the claims for April and May. Plots for inpatient claims and for outpatient and inpatient mental health claims show similar relationships between the CRI and control area claims arrival patterns. Across all areas, outpatient claims arrive more slowly than inpatient claims (weighted by dollars paid) and, within each, mental health claims arrive more slowly than other claims.

To increase the proportion of 1989 claims that passed through processing and into the QRDF we received, we analyzed claims in both years that had been submitted by December 31 in each year. By applying this cutoff date, we allowed from four months (for September services) to nine months (for April services) for the claims to be submitted. Applying the December cutoff date to the 1987 claims data yielded about 93 percent of the claims dollars that were received after 12 months and 90 percent of the eventual total.[8]

Using information like that shown in Fig. 1, we calculated a set of completion rates to use in adjusting CRI and non-CRI data for missing (delayed) claims received: (1) up to 12 months after the service was provided and (2) after 12 months. The method used for the 12-month calculation, which was more complicated, is detailed in App. B. At least up to the 12-month point, the 1989 control area claims displayed a completion rate similar to that for the 1987 claims. Based on the arrival pattern in Fig. 1 for the CRI claims, however, we estimate that by December 1989, we had only 89 percent of the claims dollars that we would have had with a 12-month runoff period for each of the six months. In contrast, we had 93 percent of the non-CRI claims dollars that we would

[8]Our final reports will be based on all claims received; with more data and a longer runoff period, we will not need to rely on a cutoff date to facilitate the calculation of completion rates.

have had after 12 months. In the same way, we calculated completion rates for all inpatient claims and for mental health inpatient and outpatient claims. These rates were used to adjust our cost estimates for claims expected to come in up to 12 months after the date of service.

Further adjusting our results to account for claims likely to come in after 12 months was more difficult. Since the CRI arrival rate for the April claims was still 0.7 percent 12 months later, compared with 0.2 percent for non-CRI claims, we cannot easily estimate the additional CRI costs that we can expect to accumulate after 12 months. The minimum estimate is probably the 2.6 percent increase observed for the 1987 claims. The maximum can be estimated by assuming that the percent rate of increase per month we measured for the April 1989 claims in months 9 through 12 continues until January 1991, after which date claims for these services will no longer be accepted. Compounding this rate over eight months yields a maximum total post-12 month increase of about 6 percent. This estimate appears high if we consider that: (1) when we deleted CRI claims received during the four-month period from January through April 1990 (early in the claims receipt process for the later months we studied), we lost only 7 percent of the dollar total; and (2) the steeper decrease in the arrival rate for claims from the late summer months suggests that we may have overestimated the arrival rates for months 9 through 12. Since the post-12 month accumulation rate for CRI claims is so uncertain, we chose not to inflate the CRI and non-CRI claims differentially after the 12-month point. For both CRI and non-CRI, we used the post-12 month rates estimated for the pre-CRI claims (2.8 percent for outpatient claims and 2.4 percent for inpatient claims).

Table 2 shows the combined completion factors we used for each type of care for CRI and control area claims, and the DMIS data for the 48 non-CRI states. The completion factor indicates by how much we should inflate the figures calculated from the claims data to determine the total expected value of the services provided during the study periods. The completion factor is the inverse of the completion rate, or the ratio of the total expected value of claims to the value of claims received to date. The DMIS rate was calculated from information supplied by OCHAMPUS and did not vary by type of service.

We also analyzed the amount of time it took for claims to be processed and entered into the QRDF after arrival. For the first few months after the start of the new

Table 2

CRI AND NON-CRI COMPLETION FACTORS BY TYPE OF SERVICE

	CRI	Non-CRI
All services		
Inpatient	1.118	1.094
Outpatient	1.172	1.101
Mental health services		
Inpatient	1.129	1.085
Outpatient	1.207	1.129

CRI processing system in April 1989, processing CRI claims was noticeably slower. However, the differences disappeared after several months and, using the same growth rate analysis, we determined that no further adjustment was needed for processing time.

UTILIZATION AND COST MEASURES

Except for the data reported for the 48 non-CRI states, which we obtained from DMIS, we used identical methods to calculate pre-CRI, post-CRI control, and post-CRI demonstration measures. The utilization measures reported here are total numbers of hospital admissions, lengths of stay, and numbers of outpatient visits. We have also tabulated the number of CHAMPUS users. Cost measures include total health care costs for services provided by institutions and professionals, administrative costs, total inpatient and outpatient costs, and cost per hospital day and per outpatient visit. These measures are reported for all institutional and professional health care services as well as separately for mental health care services and by beneficiary category: active duty dependents, retirees, retirees' dependents, survivors, and the small number of other beneficiaries. For CRI, we also compare data for services provided by network versus nonnetwork hospitals. At this time, we are unable to report separately on services provided by network physicians or for Prime enrollees because the QRDF records do not indicate network or enrollment status.[9]

Inpatient costs include payments made to hospitals and to physicians and other providers for services to hospitalized patients. We created a "stay file," which combines the hospital and professional services records for each admission. We calculated length

[9]This information will be added for our final reports.

of stay from the dates of service on the claims for all discharges between April 1 and September 30; missing data before April 1989 and missing admission dates meant we could reliably count only those days that fell in the study period. Average cost per inpatient day is calculated from this file for all admissions that began and ended during the six-month study periods and for which we have claims covering the complete stay. Limiting the admissions considered to those falling entirely within the period disproportionately omits longer stays. However, without a complete and accurate claims history for CRI services provided before April 1989, we cannot calculate the cost of stays that began before April. Dropping the stays with claims gaps made almost no difference in the estimated costs per day.

We defined a visit as any line item on a claim with a provider visit procedure code. This method misses visits for which the provider billed only for another procedure code (e.g., endoscopy).[10] To calculate the cost per visit, we simply divided the total cost of all outpatient services, including ancillary services, by the number of visits. To the extent that we missed encounters because there was no visit procedure code listed, the cost per visit will be overestimated in both periods. If, as seems likely, the incidence of outpatient surgery increased over the two-year time period, the bias is larger in 1989 and we are underestimating the increase in the number of visits.

Mental health care is defined as all payments made to a mental health care provider or for a mental health diagnosis. Other research has found that patients with mental health diagnoses often are treated by nonmental-health care providers (Morlock, 1989). However, only 2 percent of mental health diagnoses are coded by nonmental-health care providers in the CHAMPUS claims. Although it is possible that the generous CHAMPUS coverage for mental health services causes more referrals to mental health specialists, we expect that the claims underrepresent the provision of mental health care by other providers.

Administrative costs were reported to us by FHC as the amount paid by the government during the six-month study period. From our interviews, we believe that

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[10]In the future, we will use a more comprehensive method developed by the RAND Health Insurance Experiment (Peterson et al., 1986). First we will identify all procedure codes that are associated with a provider encounter or usually constitute a visit (e.g., immunization) and then we will define as a visit each unique patient-provider-date combination that includes at least one of the identified procedure codes. The institutional and professional claims for visits to emergency rooms or for outpatient surgery will be combined so that we can measure the full cost of the visit.

these costs closely approximate actual administrative costs. Included are the costs of claims processing (the sole costs under the standard CHAMPUS program), utilization review, Health Care Finder staff, network development, beneficiary and provider education and assistance, MTF liaison quality assurance, and associated profit.

To compare changes in health care utilization and costs in CRI with those in the standard program, we have emphasized comparability in our analysis of the actual costs reflected in the claims data for the CRI and non-CRI areas. We have not attempted the difficult job of reconciling our calculations with the prospective price established by the complex CRI contract. Therefore, our cost figures may differ from the cost figures calculated at any time under the contract. However, we have reviewed the contract provisions to determine whether there are costs or savings to the government that are not captured by our analysis. In the long run, a competitive marketplace and effective contracting process should cause the prospectively bid price for CRI or any similar program to be close to the underlying costs of operating the program, including the costs of health care services and administration.

To put our analysis in context for those concerned with this issue, it is useful to review the major provisions of the CRI contract. The contract, which is priced prospectively, establishes separate payments for administrative overhead (including claims processing and utilization review) and for health care outlays. We have included the administrative component in our estimates of CRI costs.

The payments to FHC for health care are set prospectively to cover all eligible beneficiaries, but there are provisions for retrospective adjustments for unexpected population changes, CHAMPUS benefit changes, increases or decreases in area MTF workloads, and utilization trends outside the CRI demonstration area. The base price (before the adjustments) assumes that savings will be realized primarily through the Extra and Prime options. The retrospective adjustment process can occur gradually over time as the data used to calculate the adjustments become more complete.

The contract also provides for risk sharing of health care costs between FHC and the government. If a profit is made—e.g., actual health care costs are held below the prospective payment levels—FHC gets to keep a share (20–25 percent, depending on the option period). FHC must absorb small overruns in full and somewhat larger overruns in part, after which the government bears the full loss. However, there is also a cap on the cumulative total loss FHC can incur on the five-year contract, and there is protection against FHC receiving excess profits.

We have calculated our own estimates of health care costs to ensure that they are comparable to our non-CRI estimates. To the extent that CRI costs have been altered by changes in population and covered benefits, these are reflected in our figures. We have also considered the possible effects of changes in MTF workloads, but we have deferred a full cost analysis until we can develop better MTF cost measures.

The risk sharing provisions of the contract could cause our analysis to be misleading. If actual costs were to exceed the payment to FHC established by the contract, some of the loss would be absorbed by FHC and therefore not be a cost to the government. However, if actual costs were lower, only some of the savings would accrue to the government. During the period studied, approximately the second option period, actual costs have been slightly above the adjusted contract amount, close to the level at which the government bears some of the loss.[11] The adjustments reflect information available in early 1990 for all factors except benefits changes. Adjustments for the latter are currently being negotiated, and the payment level for FY 1989 may increase somewhat. However, the additional payment is unlikely to lead to sharing of savings between FHC and the government.

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[11]Information supplied by the Office of the Assistant Secretary of Defense (Health Affairs).

III. RESULTS

BENEFICIARY ENROLLMENT IN CHAMPUS PRIME

CHAMPUS Prime is one of several important innovations of CRI. We are not yet able to compare the utilization and costs of Prime enrollees with those of nonenrollees because enrollment is not coded in the QRDF. Nevertheless, for this option to play a role in CRI outcomes, substantial enrollment is required. As background for the cost and utilization results that follow, therefore, Fig. 2 shows the time trends in enrollment. Separate trends are plotted for total enrollment, enrollment for active duty dependents and other CHAMPUS beneficiaries in the first nine catchment areas to offer the

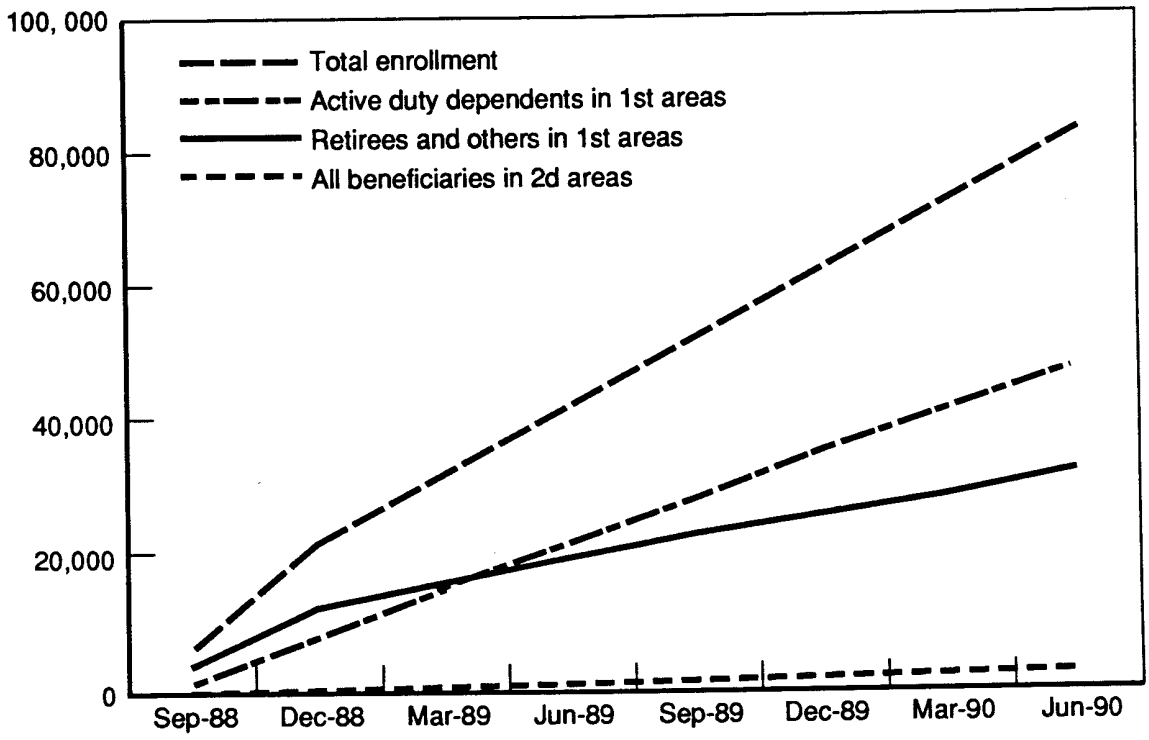

Fig. 2—Beneficiary enrollment in CHAMPUS Prime

Prime option (1st areas), and enrollment in three areas that added Prime in early 1989 (2d areas). [1]

Prime enrollment has continued to grow steadily, at a higher rate for active duty dependents than for retired beneficiaries. Most of the enrollment has occurred in the original nine areas; few beneficiaries have enrolled in the other three areas, despite their large beneficiary populations. The over 80,000 beneficiaries enrolled as of June 1990 represent just under 10 percent of the CHAMPUS population in the two states. These enrollment figures should be unusually reliable because Prime enrollment automatically terminates standard CHAMPUS eligibility, and disenrollees have a substantial incentive to make sure their enrollment status is changed.

TOTAL COSTS

We begin by reporting figures for the CHAMPUS program: first the costs of all services provided by institutions and professionals, followed by costs and utilization rates for inpatient and outpatient services. We will then examine total utilization by these CHAMPUS beneficiaries in the military health care system (CHAMPUS and the MTFs) and provide some rough estimates of total system costs per capita. Finally, we will provide similar information for CHAMPUS mental health care services; since almost no mental health care is provided to these beneficiaries in MTFs, we do not add MTF costs for these services.

Total CHAMPUS costs for California and Hawaii in the second half of FY 1987 and 1989 are shown in the first two columns of Table 3. We have not adjusted these costs for inflation. The total amount paid for CHAMPUS claims declined substantially over the two years, but the difference was offset by the higher administrative costs of operating CRI. Altogether, costs in CRI were 2 percent higher in the second half of FY 1989 than they were during the same period two years earlier.

The costs of the fledgling resource sharing program were small (Table 3). Resource sharing allows the CRI contractor to augment MTF resources at his own expense if he believes that the investment will pay off in lower CHAMPUS costs. Added

[1]The nine areas that introduced the Prime option when CRI began in 1988 are Beale AFB (Marysville), Mather AFB (Sacramento), Travis AFB (Fairfield), Camp Pendleton (Oceanside), George AFB (San Bernardino), March AFB (Riverside), Long Beach, San Diego, and Tripler (Honolulu). Added later were San Francisco, Oakland, and Fort Ord (Monterey).

resources can include personnel of all kinds, equipment, and even facility renovation or construction. The first resource sharing agreements were made in April and May 1989, and the costs grew to about $250,000 by September 1989. The figures from almost a year later show that monthly costs doubled. Thus, although resource sharing continues to gradually take hold, it accounts for substantially less than 1 percent of contractor outlays.[2]

In the other 48 states, health care costs increased 16 percent over this two-year period. Most of this increase occurred in the second year, since the CHAMPUS DRG-based payment system adopted in October 1987 substantially slowed cost increases in 1987–88. On average, the DRG payments exacted a 25 percent cut in payment levels for hospital services. Administrative costs (for claims processing) are smaller than for the standard CHAMPUS program, so their inclusion makes little difference in total costs or their rate of increase.

Table 4 compares the growth in health care costs by beneficiary group in CRI areas and in other areas of the country. Two comparisons are shown: (1) California and

Table 3

TOTAL COSTS FOR CRI VS. OTHER STATES: 1987 AND 1989
($ millions)

	California and Hawaii (April–September)			Other States (October–September)		
Type of Cost	1987[b]	1989	% Change	1987[b]	1989	% Change
Health care[a]	208.31	177.40	−14.8	1,536.89	1,777.17	15.6
Administrative	5.50	40.44	635.3	31.25	36.95	18.2
Resource sharing	—	.55	—	—	—	—
Total	213.81	218.39	2.1	1,568.14	1,814.12	15.7

[a]Health care costs in this table are summed from inpatient and outpatient costs in Tables 6 and 10, respectively. They are adjusted by the appropriate CRI, non-CRI, and DMIS completion factors.

[b]1987 claims processing costs are prorated based on the fraction of total admissions and visits in California that year.

[2]See App. A for more information on resource sharing.

Table 4

CHANGE IN CHAMPUS HEALTH CARE COSTS,[a] 1987 AND 1989: CRI VS. OTHER AREAS

	California and Hawaii (April–September)			Other States (October–September)		
	1987	1989	% Change	1987	1989	% Change
Total costs ($ mil.)						
Active duty dependents	129.43	108.33	-16.3	794.49	963.71	21.3
Retirees and dependents	78.88	69.06	-12.4	742.39	813.46	9.6
All	208.31	177.40	-14.8	1,536.88	1,777.17	15.6
	10 CRI Areas (April–September)			10 Control Areas (April–September)		
	1987	1989	% Change	1987	1989	% Change
Total costs ($ mil.)						
Active duty dependents	89.56	69.24	-22.7	62.81	71.49	13.8
Retirees and dependents	52.97	44.82	-15.4	38.71	43.52	12.4
All	142.53	114.06	-20.0	101.52	115.01	13.3

[a]Health care costs in this table are summed from inpatient and outpatient costs in Tables 6 and 10, respectively. They are adjusted by the appropriate CRI, non-CRI, and DMIS completion factors.

Hawaii versus the other 48 states and (2) ten CRI catchment areas versus ten non-CRI matched catchment control areas. In this and succeeding tables, the matched comparisons omit mental health services for San Diego and Portsmouth, but include the nonmental-health services provided in these two areas. With the implementation of a prepaid mental health demonstration program in Portsmouth during this two-year period, mental health care use at this site is not accurately represented in the claims data.

As we discussed previously, the matched pairs provide a better estimate of differences in the change in costs and utilization between the CRI areas and other areas, first because of the balanced design that eliminates at least some of the effects of other factors. Second, we used the same methods to calculate the figures for California and Hawaii, the ten CRI areas, and the ten control areas, whereas the figures for the other 48 states were obtained from DMIS. In most instances, the patterns of change in the ten CRI areas are similar to the patterns in the full two-state demonstration area. Therefore, since the control sites were chosen to match the CRI areas as closely as possible at baseline, the "best" estimate available now of the relative difference in the rate of change under CRI can be found by looking at the matched comparison.

The pattern of cost decline under CRI is seen in Table 4 to be consistent for both beneficiary groups and in the ten CRI areas, as well as in California and Hawaii overall. In other parts of the country, however, CHAMPUS costs rose by substantial amounts. The increase is especially large for active duty dependents in the other 48 states. In the ten control sites, costs increased somewhat more slowly. If we adjust the figures for the ten CRI and ten control areas in Table 4 to account for administrative overhead, we find that total costs decreased by 4 percent in the CRI areas and increased by 13 percent in the control areas.

An accurate projection of this CRI/non-CRI difference to the full two-state demonstration area to estimate what California and Hawaii costs would have been without CRI requires the more sophisticated analytic methods that we will use in preparing our final reports. A "back of the envelope" estimate for those who need it can be made by projecting the matched comparison to the California and Hawaii rate of increase of 2 percent. If we take the ratio of the rates of change between the ten control areas and the ten CRI areas (1.13 / 0.96 = 1.18) as a measure of the non-CRI/CRI differential, we would project that costs in California and Hawaii would have increased by 20 percent without CRI (1.18 ×1.02).[3] However, we stress that this estimate of "without CRI" costs increases is crude; it adjusts for none of the differences among the ten CRI catchment areas included in the matched comparison and the full two-state demonstration area.

These cost figures are unadjusted for changes in population between 1987 and 1989. DMIS data on the nonactive-duty population is shown in Table 5 first for California and Hawaii versus the other states and then for the ten CRI vs. ten control areas. For the matched pair comparison, the pattern of change differed, but the 1989 populations were fairly evenly matched. The active duty dependent population was unchanged in the CRI areas, but it decreased in the control areas. Most of this decrease occurred in the Portsmouth catchment area. In both sets of areas, the under-65 retired population increased, but the rate of increase was substantially larger in the control areas. Overall, the rate of growth was about three times as high in the control areas as it was in the CRI areas.[4] Population growth was similar in the ten CRI areas chosen for matching

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[3]This is similar to the figure we estimated using different methods in our previous Note.

[4]Between 1987 and 1989, some adjustments were made to eliminate overseas beneficiaries with APO addresses; we understand that these changes disproportionally affected California.

and the entire two-state demonstration area, but population increased somewhat more rapidly nationwide than it did in the control areas.[5] Below, we roughly estimate the costs per beneficiary in 1987 and 1989 for CHAMPUS and the MTFs.

From the claims data, we were able to estimate the total number of beneficiaries who used CHAMPUS, or filed at least one CHAMPUS claim, during each year. (Since DMIS does not report number of users, we cannot compare the California and Hawaii trends with the trends in the other states.) We did observe substantial increases in the number of users in the CRI areas and the control areas. The control areas experienced an especially steep rise in the number of users. In 1987, a smaller fraction of control area than CRI area beneficiaries used CHAMPUS; by 1989, the two sets of areas had equivalent fractions of CHAMPUS users.

Table 5 also shows the average CHAMPUS cost per user for the three sets of areas for which we could make this calculation. To calculate total cost per user, we first allocated administrative overhead by multiplying the health care costs for each beneficiary group in Table 4 by the appropriate ratio of total costs to health care costs from Table 3. We then divided the estimated total costs for each group by the number of users in that group. Both beneficiary groups in the CRI and control areas experienced a decrease in the cost per user. The rate of decline was somewhat larger for active duty beneficiaries than for retired beneficiaries. It is especially interesting to note that the percentage drop in the cost per user was essentially the same in the matched CRI and control areas. In both years, cost per user was lower in the control areas, primarily because of lower outpatient costs (lower visit rates and costs per visit; see below).

INPATIENT COSTS AND UTILIZATION

Inpatient costs and utilization are presented in Table 6 for California and Hawaii and the other 48 states. As indicated in Sec. II, these costs include amounts paid to hospitals and to physicians for treating hospitalized patients. Inpatient costs declined by one-third in the two CRI states, with most of the decrease coming from fewer admissions and lower cost per day. In the other 48 states, inpatient costs grew at a modest rate as

[5]Some of the increase was caused by an effort to enroll dependents of reservists on extended active duty, who were eligible for care in 1987 but often not enrolled. Most of these new beneficiaries live in the eastern states. We have been unable to determine whether this enrollment was accompanied by increased health care use by these beneficiaries. If not, the population growth in the non-CRI states is overstated.

Table 5

CHANGE IN NONACTIVE-DUTY POPULATION, 1987 AND 1989:
CRI VS. OTHER STATES

	California and Hawaii			Other States		
	1987	1989	% Change	1987	1989	% Change
Active duty dependents						
Population (000)	415.5	420.5	1.2	1,893.4	2,061.4	8.9
No. users (000)	95.9	119.3	24.4	—	—	—
Cost/user ($)	1,385	1,118	-19.3	—	—	—
Retirees						
Population (000)	412.0	424.5	3.0	2,480.7	2,669.7	7.6
No. users (000)	77.9	92.2	18.4	—	—	—
Cost/user ($)	1,039	922	-11.3	—	—	—
All beneficiaries						
Population (000)	827.5	845.0	2.1	4,374.1	4,731.7	8.2
No. Users (000)	173.8	211.5	21.7	—	—	—
Cost/User ($)	1,199	1,033	-13.8	—	—	—
	10 CRI Areas			10 Control Areas		
	1987	1989	% Change	1987	1989	% Change
Active duty dependents						
Population (000)	307.8	308.5	0.2	323.5	317.4	-1.9
No. users (000)	78.2	94.9	21.4	64.7	93.3	44.2
Cost/user ($)	1,176	898	-23.6	990	782	-21.0
Retirees						
Population (000)	277.1	287.1	3.5	255.5	296.4	16.0
No. users (000)	56.4	67.8	20.3	49.2	67.5	37.2
Cost/user ($)	964	814	-15.6	803	658	-18.1
All beneficiaries						
Population (000)	584.9	595.2	1.7	579.1	613.9	6.0
No. Users (000)	134.6	162.7	20.9	113.9	160.8	41.2
Cost/User ($)	1,087	863	-20.6	909	730	-19.7

NOTE: Cost/user calculated from total health care costs, inflated by the administrative overhead rate and appropriate completion factors. Number of users not available for other states from DMIS data.

Table 6

CHANGE IN CHAMPUS INPATIENT USE, 1987 AND 1989: CRI VS. OTHER AREAS

	California and Hawaii (April–September)			Other States (October–September)		
	1987	1989	% Change	1987	1989	% Change
Total inpatient costs ($ mil.)[a]						
Active duty dependents	94.90	64.44	-32.1	660.69	738.35	11.8
Retirees and dependents	50.46	31.80	-37.0	524.34	493.73	-5.8
All	145.36	96.24	-33.8	1,185.03	1,232.08	4.0
Number of admissions						
Active duty dependents	11,014	9,749	-11.5	122,080	140,447	15.0
Retirees and dependents	6,759	4,858	-28.1	128,490	96,517	-24.9
All	17,773	14,607	-17.8	250,570	236,964	-5.4
Average length of stay						
Active duty dependents	6.67	6.34	-4.9	6.81	7.43	9.1
Retirees and dependents	7.75	7.78	0.4	7.49	8.26	10.3
All	7.08	6.82	-3.7	7.16	7.77	8.5
Average cost/day ($)						
Active duty dependents	1,363	971	-28.8	703	708	0.7
Retirees and dependents	968	887	-8.4	482	619	28.4
All	1,212	943	-22.2	585	669	14.4

[a]Costs are inflated by the appropriate inpatient CRI, non-CRI, and DMIS completion factors.

there were also fewer admissions but, unlike the situation in the CRI states, longer lengths of stay and higher costs per day in 1989. As we discussed above, inpatient costs were controlled during this time period with the implementation in October 1987 of a CHAMPUS prospective payment system.[6]

Table 7 indicates that inpatient costs declined even more sharply in the subset of the CRI areas that were matched to the control areas. In contrast, the control areas experienced only a minor decrease in inpatient costs. In the CRI areas, the pattern of change differed for active duty and retired beneficiaries. The former had fewer

[6]For this Note, we were not able to directly adjust for the repricing of CHAMPUS inpatient services under prospective payment. If the demonstration and control areas were differentially affected by prospective payment, the comparisons we make here are biased. Health care costs per unit of service are high in California, but lengths of stay are short; therefore, it is unclear a priori whether prospective payment lowered CHAMPUS costs in California more than it did in our control areas. Our final report will attempt to directly adjust for the payment system changes.

Table 7

CHANGE IN INPATIENT CHAMPUS USE, 1987 AND 1989:
CRI VS. CONTROL CATCHMENT AREAS
(April–September)

	10 CRI Areas			10 Control Areas		
	1987	1989	% Change	1987	1989	% Change
Total inpatient cost ($ mil.)[a]						
Active duty dependents	65.09	37.25	-42.8	47.80	47.19	-1.3
Retirees and dependents	33.59	18.62	-44.6	25.74	23.80	-7.5
All	98.68	55.87	-43.3	73.54	70.99	-3.5
Number of admissions						
Active duty dependents	8,628	7,159	-17.0	8,237	9,162	11.2
Retirees and dependents	4,459	3,061	-31.3	5,545	4,661	-15.9
All	13,087	10,220	-21.9	13,782	13,823	0.3
Average length of stay						
Active duty dependents	5.02	4.55	-9.4	5.23	5.61	7.3
Retirees and dependents	7.04	6.96	-1.1	7.34	7.60	3.5
All	5.71	5.27	-7.7	6.09	6.29	3.3
Average cost/day ($)						
Active duty dependents	1,460	1,017	-30.3	1,082	891	-17.7
Retirees and dependents	1,022	913	-10.7	642	654	1.9
All	1,309	985	-24.8	902	810	-10.2

[a]Costs are inflated by the appropriate inpatient CRI, non-CRI, and DMIS completion factors.

admissions and shorter lengths of stay, as well as substantially lower costs per day. In contrast, decreased admissions for retired and other beneficiaries accounted for much of the inpatient cost decrease for this group.

The utilization and cost figures we have presented so far are only for the CHAMPUS program, which provides only a fraction of the health care received by these beneficiaries. Since the majority of health care (other than mental health care) is obtained through the MTFs, changes in MTF workloads can have major consequences for CHAMPUS. To get a more complete picture of changes in health care utilization in CRI and non-CRI areas, Table 8 shows the number of admissions under CHAMPUS, in the MTFs, and in total.

For active duty dependents, the decrease in the number of CHAMPUS admissions under CRI was largely offset by an increase in MTF admissions. In the ten CRI areas

Table 8

CHANGE IN TOTAL INPATIENT USE, 1987 AND 1989: CRI VS. OTHER AREAS

Admissions	California and Hawaii (April–September) 1987	1989	% Change	Other States (October–September) 1987	1989	% Change
Active duty dependents						
CHAMPUS	11,014	9,749	-11.5	122,080	140,447	15.0
MTF	24,982	25,728	3.0	225,591	218,402	-3.2
Total	35,996	35,477	-1.4	347,671	358,849	3.2
Retirees						
CHAMPUS	6,759	4,858	-28.1	128,490	96,517	-24.9
MTF	16,956	16,866	-0.5	174,894	168,365	-3.7
Total	23,715	21,724	-8.4	303,384	264,881	-12.7
Total	59,711	57,201	-4.2	651,055	623,730	-4.2
Admissions/1,000 population	72.2	67.7	-6.2	148.8	131.8	-11.4
	10 CRI Areas (April–September)			10 Control Areas (April–September)		
	1987	1989	% Change	1987	1989	% Change
Active duty dependents						
CHAMPUS	8,628	7,159	-17.0	8,237	9,162	11.2
MTF	16,706	18,483	10.6	19,772	20,995	6.2
Total	25,334	25,642	1.2	28,009	30,157	7.7
Retirees						
CHAMPUS	4,459	3,061	-31.4	5,545	4,661	-15.9
MTF	9,629	9,985	3.7	11,335	12,799	12.9
Total	14,088	13,046	-7.4	16,880	17,460	3.4
Total	39,422	38,688	-1.9	44,889	47,617	6.1
Admissions/1,000 population	67.4	65.0	-3.6	77.5	77.6	0.1

NOTE: MTF figures include admissions of Medicare-eligible beneficiaries. CHAMPUS figures for the ten CRI and control areas exclude mental health admissions in San Diego and Portsmouth.

only, other beneficiaries also had more MTF admissions, but not enough to offset the large CHAMPUS decrease. Until we have completed our surveying, we cannot determine whether the overall decline in inpatient use for these generally older beneficiaries reflected an increased use of nonmilitary health care sources. In any case, the MTF figures for retired beneficiaries include admissions of Medicare eligibles as well as CHAMPUS eligibles because the DMIS data do not usually report workloads

by age category.[7] If the finding that total inpatient admissions decreased for retired beneficiaries but not for active duty dependents holds up with better data, one might hypothesize that efforts to shift care from inpatient to outpatient settings may have had a larger effect on the older retired group. More detailed analysis will be required to determine whether prior authorization has differentially affected the two groups or whether other factors might be responsible for the difference.

In the ten control areas, total admissions actually increased by 6 percent. Admissions for active duty dependents rose in both sectors, but other beneficiaries showed the same pattern of fewer CHAMPUS admissions and more MTF admissions that we saw in California and Hawaii.

Health care in California and Hawaii, as expected, is fairly high-priced, but under CRI the gap has narrowed. In 1989, cost per admission was similar but cost per day was almost 20 percent lower in the control areas.

Comparing the total admissions figures in Table 8 with the beneficiary and user population figures in Table 5, we see that the control areas had higher admission rates per thousand than the CRI areas before and after the demonstration began. The gap widened under CRI.

We were able to identify hospital stays in network hospitals, but we cannot yet determine whether the admitting physicians belonged to the network as well. The expenditures for patients in network hospitals shown in Table 9 represent almost 30 percent of the inpatient costs that could be attributed to a hospital stay and 35 percent of the admissions. The proportions were essentially the same for active duty and retired beneficiaries. Average length of stay was lower in network hospitals, as was average cost per day. However, these figures do not correct for any case mix differences in the two types of hospitals.

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[7]The over-65 group is increasing most rapidly; since their alternative to MTF care is the more expensive Medicare program, they are probably heavier users of MTFs.

Table 9

INPATIENT CHAMPUS COST FOR NETWORK AND STANDARD OPTIONS:
CRI STATES
(April–September 1989)

	Network			Standard		
	Active Duty Dependents	Retirees & Dependents	All	Active Duty Dependents	Retirees & Dependents	All
Hospital costs ($ mil.)[a]	15.09	10.28	25.37	44.30	19.50	63.80
No. admissions	3,335	1,821	5,156	6,414	3,307	9,451
Average length of stay	5.40	7.215	6.05	6.85	8.11	7.25
Average cost/day ($)	904	905	905	1,005	876	964

[a]Hospital costs are inflated by the CRI completion factor.

OUTPATIENT COSTS AND UTILIZATION

In contrast to inpatient costs, outpatient costs in the CRI areas increased between 1987 and 1989 by about 30 percent (Tables 10 and 11). The rate of increase was similar for the two beneficiary groups. The other 48 states and the control areas also experienced an increase in outpatient costs, but at a much higher rate. In the CRI areas, the increases were largely due to higher costs per visit and the previously mentioned increase in the number of CHAMPUS users (see Table 5). Although total visits per user declined, nonmental-health visits per user increased from 2.0 to 2.2 in the two-state area (not shown).

In the control areas, the much larger rate of increase in outpatient costs was primarily caused by added users. Despite the intense efforts under CRI to obtain discounts from network physicians, cost per visit in the CRI areas rose slightly faster than in the control areas. Since we did observe real discounts in the fees specified in the network contracts in our first report (Hosek et al., 1990), it is possible that CRI was successful in preventing even larger cost increases for outpatient care. These figures are not case-mix adjusted, so more detailed analysis will be required to sort out the possible explanations for the patterns we see here.

Table 12 combines CHAMPUS and MTF outpatient visits to look at total outpatient use in the combined military system for these beneficiaries. MTF outpatient workloads decreased slightly in California and Hawaii, so that overall there was little change in total outpatient use and the number of visits per capita. In the ten CRI areas

Table 10

CHANGE IN OUTPATIENT CHAMPUS COSTS, 1987 AND 1989: CRI VS. OTHER STATES

	California and Hawaii (April–September)			Other States (April–September)		
	1987	1989	% Change	1987	1989	% Change
Total costs ($ mil.)						
Active duty dependents	34.53	43.89	27.1	133.80	225.36	68.4
Retirees and dependents	28.42	37.26	31.1	218.05	319.73	46.6
All	62.95	81.16	28.9	351.85	545.09	54.9
Number of visits (000)						
Active duty dependents	337.3	375.9	11.4	1,317.4	2,284.4	73.4
Retirees and dependents	268.6	296.9	10.5	1,630.6	2,481.4	52.2
All	605.9	672.8	11.0	2,948.0	4,765.9	61.7
Visits/user						
Active duty dependents	3.52	3.15	–10.5			
Retirees and dependents	3.45	3.22	–6.7		Not Available	
All	3.49	3.18	–8.9			
Cost/visit ($)						
Active duty dependents	102.4	116.7	14.0	101.6	98.7	–2.9
Retirees and dependents	105.8	125.5	18.6	133.7	128.9	–3.6
All	103.8	120.7	16.3	119.4	114.4	–4.2

NOTE: Total costs and visits are adjusted by the appropriate CRI, non-CRI, and DMIS completion factors.

chosen for matching, outpatient use increased in both sectors and the average six-month visit rate rose by 5 percent. In the control areas, the sharp increase in CHAMPUS outpatient use was accompanied by noticeably higher MTF workloads. The result was a 10 percent increase in the average visit rate in these areas; in contrast, there was little change in the 48 non-CRI states. Given the relative changes in MTF workloads in the CRI and non-CRI areas, comparing only the changes in CHAMPUS underestimates the differences in outpatient use between the CRI and control areas.

PER CAPITA COSTS OF CHAMPUS AND MTF CARE

The patterns of change we presented above are complex, since they include changes in the number of eligible beneficiaries, mix of CHAMPUS and MTF use, and costs per unit of service in both sectors. Table 13 combines these changes and shows estimates of the per capita costs in 1987 and 1989 of services provided to CHAMPUS

Table 11

CHANGE IN OUTPATIENT CHAMPUS COSTS, 1987 AND 1989: CRI VS. CONTROL AREAS

	10 CRI Areas (April–September)			10 Control Areas (April–September)		
	1987	1989	% Change	1987	1989	% Change
Total costs ($ mil.)						
Active duty dependents	24.47	31.99	30.7	15.01	24.30	61.9
Retirees and dependents	19.38	26.20	35.2	12.97	19.72	52.0
All	43.85	58.19	30.5	27.98	44.02	57.3
Number of visits (000)						
Active duty dependents	224.0	260.2	16.2	140.8	205.2	45.7
Retirees and dependents	175.5	205.4	17.0	122.8	172.8	40.8
All	399.5	465.6	16.5	263.6	378.0	43.4
Visits/user						
Active duty dependents	2.86	2.74	–4.2	2.18	2.20	0.9
Retirees and dependents	3.11	3.03	–2.6	2.50	2.56	2.4
All	2.97	2.86	–3.7	2.31	2.35	1.7
Cost/visit ($)						
Active duty dependents	109.2	122.9	12.5	106.6	118.5	11.1
Retirees and dependents	110.5	127.5	15.4	105.6	114.1	8.0
All	109.8	125.0	13.8	106.1	116.5	10.0

NOTE: Total costs are adjusted by the appropriate CRI and non-CRI completion factors. Mental health costs and visits for Portsmouth and San Diego are excluded.

beneficiaries in CRI and non-CRI areas. For each area in each year, CHAMPUS per capita costs equal total inpatient and outpatient CHAMPUS costs (Tables 6–7 and 10–11, respectively) divided by the eligible population (Table 5). To calculate MTF inpatient costs in each group of areas, we multiplied the number of MTF admissions in the areas in each year by the average cost per admission in hospitals in the continental United States (CONUS) during that year ($2,262 for 1987 and $2,675 for 1989). To obtain per capita costs, we again divided by the eligible population. Similar calculations were carried out for MTF outpatient services, using the number of visits from Table 12 and the average cost per visit in CONUS facilities ($57.22 for 1987 and $60.17 for 1989). The total per capita cost figures also include a prorated share of the CHAMPUS overhead cost (CRI or standard CHAMPUS).

The figures shown in Table 13 should be viewed with caution. The population growth rates contain some errors. The MTF average cost figures come from the Medical Expense and Performance Reporting System (MEPRS), a component of DMIS. Since the MTFs themselves are required for the treatment of wartime casualties, DoD does

Table 12

CHANGE IN OUTPATIENT USE, 1987 AND 1989: CRI VS. OTHER AREAS
(Thousands)

	California and Hawaii (April–September)			Other States (October–September)		
	1987	1989	% Change	1987	1989	% Change
Active duty dependents						
CHAMPUS visits	337.3	375.9	11.4	1,317.4	2,284.4	73.4
MTF visits	1,010.5	998.7	–1.2	9,904.2	10,035.5	1.3
Total	1,347.8	1,374.6	2.0	11,221.6	12,319.9	9.8
Retirees						
CHAMPUS visits	268.6	296.9	10.5	1,630.6	2,481.4	52.2
MTF visits	908.0	851.9	–6.2	9,415.0	9,201.6	–2.3
Total	1,176.6	1,148.8	–2.4	11,045.6	11,683.0	5.8
Total visits	2,524.4	2,523.4	0.0	22,267.2	24,002.9	7.8
Visits/population	3.05	2.99	–2.0	5.09	5.07	–0.4
	10 CRI Areas (April–September)			10 Control Areas (April–September)		
	1987	1989	% Change	1987	1989	% Change
Active duty dependents						
CHAMPUS visits	224.0	260.2	16.2	140.8	205.2	45.7
MTF visits	552.3	549.4	–1.0	603.9	664.4	10.0
Total	776.3	809.6	4.3	744.7	869.6	16.8
Retirees						
CHAMPUS visits	175.5	205.4	17.0	122.8	172.8	40.7
MTF visits	335.8	366.1	9.0	420.6	452.5	7.6
Total	511.3	571.5	11.8	543.4	625.3	15.1
Total visits	1,287.6	1,381.1	7.2	1,288.1	1,494.9	16.1
Visits/population	2.20	2.32	5.5	2.22	2.44	9.9

NOTE: CHAMPUS visits are adjusted by the appropriate CRI, non-CRI, and DMIS completion factors for outpatient services. MTF visits are for all nonactive-duty beneficiaries, including those over age 65. CHAMPUS figures for the ten CRI and control areas exclude mental health visits in Portsmouth and San Diego.

not include facility depreciation in calculating MTF costs. Generally included are personnel costs, equipment depreciation, supply costs, and the costs of supporting operations (laundry, grounds maintenance, etc.). However, some of these costs are underestimated and the reporting of costs is not consistent across MTFs. For example, personnel costs do not include special pays, which are sizable for physicians. The recording of facility support costs often is inadequate unless the

Table 13

PER CAPITA COSTS OF CHAMPUS AND MTF CARE
IN CRI VS. NON-CRI AREAS, 1987 AND 1989

	California and Hawaii (April–September)			Other States (October–September)		
	1987	1989	% Change	1987	1989	% Change
Inpatient						
CHAMPUS	$180	$140	$–40	$276	$266	$–10
MTF	115	135	+20	207	219	+12
Outpatient						
CHAMPUS	78	118	+40	82	118	+36
MTF	133	132	–1	253	245	–8
All services						
CHAMPUS	258	258	+0	358	384	+26
MTF	248	267	+19	460	464	+4
CHAMPUS and MTF total	506	525	+19(3.8%)	818	848	+30(3.7%)
	10 CRI Areas (April–September)			10 Control Areas (April–September)		
	1987	1989	% Change	1987	1989	% Change
Inpatient						
CHAMPUS	$173	$116	$–57	$130	$118	$–12
MTF	102	128	+26	122	147	+25
Outpatient						
CHAMPUS	77	120	+43	49	73	+24
MTF	87	93	+6	101	109	+8
All services						
CHAMPUS	250	236	–14	179	191	+12
MTF	189	221	+32	223	256	+33
CHAMPUS and MTF total	439	457	+18(4.1%)	402	447	+45(11.2%)

NOTE: CHAMPUS costs are adjusted to include a prorated share of administrative overhead costs. These figures reflect the volume of services used by beneficiaries in CHAMPUS and the MTFs. They do not measure the relative costs of providing the same care in the two systems.

hospital purchases or provides the support itself. Finally, depreciation of equipment in new hospitals is not included because equipment is paid for with construction funds. Since the ten CRI areas include two with major new facilities between 1987 and 1989, we believe these factors may have differentially affected the rates of growth of MTF costs in CRI areas, not just cost levels. We are working to correct some of these deficiencies, but we will not be able to correct for differences in case mix or patient severity.

Bearing in mind the serious limitations of the MTF cost data, we nevertheless use the information in Table 13 to approximate the total costs of providing military health care to CHAMPUS beneficiaries in CRI versus non-CRI areas. Comparing the entire two-state CRI demonstration area with the other 48 states, we find that per capita costs actually increased somewhat in both areas after taking into account MTF use and population growth. In contrast, per capital total costs also increased modestly in the ten CRI areas but rose more rapidly in the matched control areas. Although more work is needed to gain a better understanding of these data, only the CRI-control comparison is based on comparable data analyzed with comparable methods. This comparison shows that total cost growth in the CRI demonstration area lagged behind total cost growth in other areas. The pattern may change again in our final reports, which will adjust for differences in the characteristics of the beneficiaries living in the various areas and use improved MTF cost data.

MENTAL HEALTH CARE COSTS AND UTILIZATION

In our first preliminary report on CRI, we found substantial declines in mental health care use, especially in the ambulatory setting. As Table 14 shows, we again found that California/Hawaii inpatient and outpatient mental health care costs were lower in 1989 than they were in 1987. However, the rate of decrease is smaller than the rate we estimated earlier. The difference probably lies in the longer time we allowed for claims to be filed and processed and, if first denied, to be resubmitted. The drop in mental health care costs experienced in the CRI areas sharply contrasts with the substantial increases experienced elsewhere. In 1987, total mental health care costs in the ten control areas were substantially lower (although the beneficiary population was only slightly smaller), but by 1989 costs were higher in the control areas.

Table 14

CHANGE IN TOTAL MENTAL HEALTH CHAMPUS USE, 1987 AND 1989: CRI STATES

	California and Hawaii (April–September)			Other States (October–September)		
	1987	1989	% Change	1987	1989	% Change
Total cost ($ mil.)						
Active duty dependents	41.30	38.96	–5.7	Not Available		
Retirees and dependents	14.30	13.24	–7.4			
All	55.60	52.20	–6.1			
	9 CRI Areas (April–September)			9 Control Areas (April–September)		
	1987	1989	% Change	1987	1989	% Change
Total cost ($ mil.)						
Active duty dependents	17.35	14.79	–14.8	9.75	18.48	88.6
Retirees and dependents	6.19	5.22	–15.7	4.43	7.99	79.4
All	23.54	20.01	–15.0	14.18	26.47	85.7

NOTE: Costs are adjusted by the appropriate CRI and non-CRI mental health completion factors.

The CRI utilization review program for mental health care is particularly extensive, since it requires treatment briefs for continuing payment for outpatient and inpatient care by all providers. Thus, CRI is an important test of the effectiveness of mental health care cost containment through managed care. There have been complaints from the provider community that care has been inappropriately denied. Although we are unable to review the medical records and assess the appropriateness of the denials, we are conducting a detailed analysis of the claims records to determine whether the lower utilization in CRI is concentrated in certain patient groups or certain mental health conditions and whether the changes are consistent with the specific goals of the utilization review programs. The results will be included in our final report.

Inpatient Mental Health Care

Table 15 shows more detailed information on mental health inpatient and outpatient use. For this type of care, we find no evidence of a shift from inpatient to

Table 15

CHANGE IN MENTAL HEALTH INPATIENT USE, 1987 AND 1989:
CRI VS. NON-CRI AREAS

	California and Hawaii (Apr.–Sept.)			Other States (Oct.–Sept.)		
	1987	1989	% Change	1987	1989	% Change
Total inpatient cost ($ mil.)						
Active duty dependents	28.74	27.92	–2.9	Not		
Retirees and dependents	8.80	8.67	–1.5	Available		
All	37.54	36.59	–2.5			
Number of Admissions						
Active duty dependents	1,282	1,245	–2.9	9,928	15,024	51.3
Retirees and dependents	870	721	–17.1	11,972	13,100	9.4
All	2,152	1,966	–8.6	21,900	28,124	28.4
Average length of stay						
Active duty dependents	31.97	29.40	–8.0	35.30	37.47	6.1
Retirees and dependents	22.43	22.80	1.6	22.04	25.34	15.0
All	28.04	27.00	–3.7	28.05	31.82	13.4
Average cost/day ($ mil.)						
Active duty dependents	547	498	–14.8	Not		
Retirees and dependents	382	400	4.7	Available		
All	484	466	–10.0			

	9 CRI Areas (April–September)			9 Control Areas (April–September)		
	1987	1989	% Change	1987	1989	% Change
Total inpatient cost ($ mil.)						
Active duty dependents	11.93	9.91	–16.9	7.96	15.55	95.4
Retirees and dependents	3.99	3.30	–17.3	3.35	6.39	90.7
All	15.92	13.21	–17.0	11.31	21.94	94.0
Number of admissions						
Active duty dependents	617	523	–15.2	441	677	51.2
Retirees and dependents	404	307	–24.0	429	473	10.3
All	1,021	830	–18.7	870	1,150	32.2
Average length of stay						
Active duty dependents	26.5	25.4	–4.2	30.3	33.6	10.9
Retirees and dependents	20.8	20.9	0.5	25.0	27.9	11.6
All	24.2	23.7	–2.1	27.7	31.3	13.0
Average cost/day ($)						
Active duty dependents	589	525	–10.9	428	502	17.3
Retirees and dependents	385	383	–0.5	275	338	22.9
All	511	475	–7.0	356	437	22.8

NOTE: Costs are adjusted by the appropriate CRI and non-CRI mental health completion factors.

outpatient care; in fact, outpatient costs fell by more than inpatient costs. For inpatient care, active duty beneficiaries throughout the two states experienced small decreases in admissions and lengths of stay and larger decreases in costs per day. This is consistent with our earlier finding that network discounts were especially large for mental health services. In the subset of nine CRI areas, admissions of active duty dependents dropped more steeply.[8] In contrast, all of the decrease for retired beneficiaries can be attributed to fewer admissions.

Unlike the CRI areas, the control areas experienced large increases in inpatient mental health care costs, at rates just above the rates for all mental health care. Length of stay initially was higher in the control areas and became even higher, while the initial gap in cost per day narrowed appreciably. Since MTFs provide little mental health care to these beneficiaries, the picture would be unlikely to change if we considered use in both systems.

Although not shown in these tables, we did calculate mental health care use separately for residential treatment centers (RTCs) and acute care facilities. RTCs account for approximately 6 percent of all mental health admissions in California and Hawaii as well as in the control areas. In the CRI states, admissions to RTCs decreased proportionately more than admissions to acute facilities over the two-year period. Most of the decrease occurred in the San Diego area, which had 60 percent of the RTC admissions in 1987. RTC admissions actually increased in the other CRI areas, where acute care facilities accounted for the decrease in mental health admissions. Admissions to both facility types increased in the control areas.

Outpatient Mental Health Care

In our first Note, we indicated that outpatient mental health care costs decreased by 34 percent. With these more complete data, we find a much slower rate of decline of 14 percent (Table 16). The number of mental health care users and the cost per visit have not changed a great deal; most of the decrease can be attributed to the number of visits per user. As we described earlier, CRI requires a treatment brief for continuing outpatient care by network *and* nonnetwork providers. For most patients, the first six visits are not reviewed, but periodic reports are required thereafter. Some claims are

[8]Recall that we had to drop the San Diego-Portsmouth pair because of the prepaid mental health demonstration in Portsmouth.

Table 16

CHANGE IN MENTAL HEALTH OUTPATIENT USE, 1987 AND 1989:
CRI VS. NON-CRI AREAS

	California and Hawaii (Apr.–Sept.)			Other States (Oct.–Sept.)		
	1987	1989	% Change	1987	1989	% Change
Total outpatient cost ($ mil.)						
Active duty dependents	12.56	11.04	–12.1			
Retirees and dependents	5.50	4.57	–16.9			
All	18.06	15.61	–13.6			
Number of users						
Active duty dependents	15,250	15,389	0.9			
Retirees and dependents	9,822	9,162	–6.7			
All	25,072	24,551	–2.1			
Visits/user				Not Available		
Active duty dependents	11.0	9.5	–13.9			
Retirees and dependents	9.0	7.8	–14.2			
All	10.2	8.8	–13.7			
Cost/visit						
Active duty dependents	74.8	75.7	1.2			
Retirees and dependents	62.0	64.3	3.7			
All	70.4	72.0	2.3			

	9 CRI Areas (April–September)			9 Control Areas (April–September)		
	1987	1989	% Change	1987	1989	% Change
Total outpatient cost ($ mil.)						
Active duty dependents	5.42	4.88	–10.0	1.79	2.93	63.1
Retirees and dependents	2.20	1.92	–12.7	1.08	1.60	48.3
All	7.62	6.80	–10.8	2.87	4.53	57.5
Number of users						
Active duty dependents	7,117	7,458	4.8	3,824	5,802	51.7
Retirees	4,431	4,191	–5.4	3,287	4,609	40.2
All	11,548	11,649	0.9	7,111	10,411	46.4
Visits/user						
Active duty dependents	10.1	8.4	–16.2	8.3	7.8	–6.2
Retirees	8.1	7.0	–13.2	6.8	6.4	–5.5
All	9.3	7.9	–14.8	7.6	7.2	–5.6
Cost/visit ($)						
Active duty dependents	75.6	77.6	2.6	56.6	64.8	14.5
Retirees	61.4	65.1	6.0	48.3	54.0	11.8
All	70.9	73.6	3.8	53.1	60.5	13.9

NOTE: Total outpatient costs and visits are inflated by the appropriate CRI and non-CRI completion factors.

denied, although we do not know how many. In addition, the process itself may encourage patients and providers to discontinue treatment sooner than they otherwise would. As we stated above, we cannot comment on the appropriateness of these changes in mental health use.

The pattern in the control sites is exactly the opposite. Here, the substantial increase in outpatient mental health care costs resulted from an almost 50 percent increase in the number of users and, to a lesser extent, higher cost per visit. The average visit rate declined, perhaps because the new users received treatment that was less intense or continued for a shorter period of time. In 1989, despite diverging trends in mental health care use under CRI and the rest of the country, the average visit rate and the cost per visit were still higher in the CRI areas than in the control areas.

IV. CONCLUSION

This interim study on CRI confirms our earlier finding that CHAMPUS health care costs declined in California and Hawaii during the CRI period; and total CHAMPUS costs, including the large administrative costs of this complex, managed-care program, increased only slightly. Insofar as we can measure it, the total per capita cost of CHAMPUS-financed civilian care *and* military care for CHAMPUS beneficiaries increased modestly. After we adjust for changes in the beneficiary and CHAMPUS user populations, there appears to have been a shift within the CHAMPUS program from inpatient to outpatient care. A more thorough analysis focused on changes in the mix of services used and reliance on the civilian versus military sectors will be needed to confirm that a shift did take place and that it resulted from CRI's extensive utilization review programs.

We have presented two comparisons. The first is between the two CRI states—California and Hawaii—and the other 48 states. The second is between a subset of ten CRI catchment areas and ten matched control areas. We are inclined to place more reliance on the matched pair of CRI and control sites because they were chosen to control as much as possible for the effects of other confounding factors, and we used the same data and methods for these two sets of sites. However, more work will be needed to track the complex effects of CRI in the dual-sector military health care system, adjust for the remaining differences between this matched set of areas, and project the findings to the full two-state demonstration area.

The results from the matched set of ten CRI and ten control catchment areas show that CHAMPUS health care costs in the CRI areas decreased by 20 percent over the two-year study period (4 percent after adjusting for the higher CRI administrative overhead), while in the control areas they increased by 13 percent. Not surprisingly, since the subset of ten CRI areas account for about two-thirds of both CHAMPUS costs and beneficiaries in California and Hawaii, the results for the CRI areas in the matched set closely resemble the larger area they represent. Although the control sites are located in regions that initially had lower health care costs than California, they were similar in other ways to the matched CRI sites before the demonstration began. Together, these observations tend to support our decision to emphasize the matched comparison in drawing conclusions.

Focusing on the CHAMPUS program by itself, cost per user declined about equally in the CRI and control areas. However, this comparison does not account for the effects of CRI on the number of CHAMPUS users or changes in MTF use by CHAMPUS beneficiaries. Nor does it adjust for differences in the rates of growth of the beneficiary population in the two sets of areas. Adjusting for MTF use and population growth does not eliminate all of the difference for these matched areas; per capita total costs increased 4 percent in the ten CRI areas and 11 percent in the ten control areas. These results provide a more complete accounting of the complex changes experienced in CRI and non-CRI areas.

Although the CRI demonstration ultimately should be evaluated on the basis of total military health system costs, not just CHAMPUS costs, the per capita total cost figures should be interpreted with caution. The MTF cost figures upon which they are based are incomplete and unadjusted for differences in case mix and patient severity, and MTF outpatient workloads in particular are imperfectly measured. We will provide better estimates in the final evaluation reports.

In California and Hawaii, the 2 percent overall increase in CHAMPUS costs between 1987 and 1989 is considerably less than the over 16 percent increase observed in the other 48 states. However, numerous differences between the CRI and non-CRI states might affect CHAMPUS cost growth. If instead we take the ratio of the cost changes estimated for the matched comparison as the "best" estimate of the CRI difference available at this interim stage, we can crudely estimate that CHAMPUS costs in California and Hawaii might have increased 20 percent without CRI.

The difference in *actual* cost growth between the CRI and non-CRI states disappears after we incorporate changes in MTF use, unit costs, and differential rates of population growth. The total per capita cost of providing health care to CHAMPUS beneficiaries increased by almost 4 percent in both the CRI areas and the other states.

Inpatient costs declined sharply in the CRI areas, while outpatient costs increased by about 30 percent and mental health costs decreased by 5–15 percent. In the non-CRI areas, most measures of health care cost and utilization increased, often by large amounts. Although the changes in all measures of inpatient utilization and costs were modest, the increases for outpatient services and mental health services were quite large (55–95 percent).

CRI continues to attract beneficiaries to CHAMPUS Prime, its HMO-like enrollment option. During the time period we studied, about one-third of CHAMPUS inpatient services were provided by the network through the nonenrollment and enrollment options. Continuing increases in enrollment suggest that this proportion may be higher today.

The data we used are more reliable and complete than the data available to us last year. One result of utilization review appears to be a longer claims tail in CRI, probably because of resubmission of denied claims. In the coming months, we will be able to remeasure the time it takes claims to arrive and be processed, but we believe that the CRI completion rates we estimated here will hold up and perhaps even rise as the effects of the early claims processing delays disappear.

Finally, we stress that these results are based on an interim analysis. Information from a beneficiary survey now in the field and more sophisticated analytic methods will be needed before we can attribute the differential experience in California and Hawaii to CRI. Our final evaluation reports will present more accurate and comprehensive estimates of the effects of CRI; they will also describe where and how the effects were realized.

Appendix A

EXTRACTS FROM N-3069-HA, PRELIMINARY RESULTS ON CRI OPERATIONS

CHAMPUS PRIME AND EXTRA

The most important CRI programs are the two new health care options, Prime and Extra. Both are based on the PPO concept, which was first developed during the early 1980s for private employer health benefits plans.

CHAMPUS Prime offers improved primary care coverage, preventive care, reduced cost sharing, and simplified procedures for beneficiaries, who use a network of "preferred" civilian providers selected by the contractor. The beneficiary must formally enroll in Prime and designate a primary care provider (a participating civilian physician or an MTF). Care is requested as needed by the beneficiary from the primary care provider, who may refer him or her to a specialist at the MTF or in the network. The patient pays only a small amount for each visit or hospital day. Thus, in return for obtaining all care from MTFs or the preferred-provider network, the enrollee receives better coverage at lower cost.

CHAMPUS Extra allows the beneficiary who chooses not to enroll in Prime the option of using the provider network to reduce his out-of-pocket costs. Each time he seeks care, he can decide whether to use a network or nonnetwork provider. If he uses the network, his copayment rate decreases by 5 percentage points; the provider files the claim and agrees not to charge the beneficiary more than an allowable fee. Although the decrease in the formal copayment rate is small, the actual decrease in beneficiary cost can be substantial because of the discounts given by network providers and the absence of balance billing.

Health care services were first offered through CHAMPUS Prime on August 1, 1988, in nine catchment areas: Beale AFB, George AFB, March AFB, Mather AFB, Travis AFB, Long Beach Naval Base, San Diego Naval Base, Camp Pendleton Marine Base, and Tripler AMC. On March 1, 1989, the areas offering CHAMPUS Prime were expanded to include Oakland Naval Hospital, Letterman Army Medical Center, and Fort Ord. Port Hueneme was added in November 1989. CHAMPUS Extra is offered in all MTF catchment areas.

RESOURCE SHARING

Resource sharing provides a way for the CRI contractor to fund additional MTF resources when they are used to provide services to CHAMPUS beneficiaries. This concept was designed to correct MTF resource imbalances—e.g., insufficient nurses and technicians to support the physicians on staff—arising from unresponsive and constrained military resource systems. With the approval of the MTF commanders, the CRI plans can use resource sharing to give MTFs the added capacity they need to deliver care that was previously financed under CHAMPUS at higher cost. Resource-sharing proposals can be initiated by either the MTFs or the plans, but the final agreements must be acceptable to both organizations. Once an agreement is signed, the plan will procure the resources and pay for them directly, not through the claims system.

The MTF will agree to a resource-sharing arrangement only if it can accommodate the additional resources without adversely affecting other areas of the hospital or clinic, and if it believes that the resources will be of acceptable quality. The plan must be confident that it will recover the costs of implementing the agreement through lower CHAMPUS reimbursements. If the program works as intended, it should lead to a better allocation of the available resources to provide health care for CHAMPUS beneficiaries.

The First Year: A Slow Start

When the CRI demonstration began in early 1988, MTF commanders and staff were enthusiastic about resource sharing and the promise it held for expanding the capabilities of their facilities. Many MTFs had experienced personnel losses and operating budget restrictions, and their commanders saw resource sharing as a way to restore their facilities' operating levels. They were uniformly disappointed when this CRI feature was delayed because the plans determined that the financial provisions in the initial contract made most resource-sharing agreements unprofitable. The commanders then turned to negotiating partnership agreements, an option that had become available to them just prior to the CRI demonstration project. The partnership program, which is nationwide, is similar to resource sharing but less flexible. It allows MTF commanders to sign agreements with civilian providers under which the civilian providers can treat CHAMPUS beneficiaries in the MTF at CHAMPUS expense; the providers file claims for payment at discounted rates. Since payment is made through the claims process, partnership agreements can be made only with providers who can bill CHAMPUS. In

contrast, resource-sharing agreements can provide other personnel as well as supplies and equipment. It is also administratively less complex for MTF staff because resource procurements are carried out by the plans.

FHC and the subcontracting plans are at financial risk when they enter into resource-sharing agreements with MTFs. To be financially attractive, adding resources must "shift" patient care to the MTF and decrease CHAMPUS costs by more than the costs of resource sharing. In 1988, the plans began to examine the cost-effectiveness of different types of resource-sharing arrangements and discovered that they would lose money under most of them. The problem lay in the complicated price-setting procedures established in the CRI contract. The prospective price stipulated in the contract is subject to retrospective adjustments, depending in part on MTF workloads. If the total MTF workload increases, the payment to the CRI contractor may decline. Under the original contract provisions, increases in workload that result from resource sharing would be counted in the retrospective adjustments. But hypothetical calculations showed that resource sharing would be cost-effective only for low-volume, high-cost medical procedures such as kidney dialysis. Thus the plans were deterred from implementing almost all kinds of resource sharing until the contract's financial provisions were changed.

The staff of the Assistant Secretary for Defense for Health Affairs (DOD/HA) and FHC spent several months revising the cost-allocation formula. Agreement was reached early in 1989, and resource sharing became available to MTFs by spring.

Partnership conversion to resource-sharing agreements is now under way at both the Tripler Army Medical Center and the 22d Strategic Hospital at March Air Force Base. In addition, most of the MTFs in the demonstration area have indicated that they will focus on resource sharing and use the alternative of partnerships to fill gaps in coverage where resource sharing is not cost-effective. Civilian providers are also likely to prefer resource-sharing agreements because they can count on prompt payment and avoid claims paperwork.

Now that resource-sharing agreements are possible, MTFs are impatient to exploit them and are perplexed that the CRI is not devoting more staff to implementing the proposals. However, each proposal must be carefully analyzed to determine its cost-effectiveness, and these analyses can be time-consuming. In addition, there is some confusion as to where the initiative for resource sharing lies. The CRI developers

believe that the MTFs are in the best position to identify their resource needs. The MTFs, on the other hand, believe that CHAMPUS is better able to identify opportunities for saving CHAMPUS dollars. This kind of confusion is not surprising at this early stage, given the complexity of the program.

Many of the early agreements involve providers and support personnel. These may be the easiest to identify, cost, and procure. Looking to the future, the plan developers and the MTFs see numerous areas where resource sharing can be cost-effective. It holds promise for increasing the nursing and technician staff in hospitals, since under resource sharing, FHC is free to pay competitive wages. In addition, clerical personnel, also in short supply, could be provided if they can increase the productivity of other personnel.

As in the case of partnerships, resource sharing can be used to acquire specialists—orthopedists, cardiologists, surgeons, obstetrician/gynecologists—who are hard to retain on active duty. In addition to saving CHAMPUS money, this use of resource sharing could also generate other benefits. For example, continuity of care may be easier to maintain when the patient obtains specialty care within the MTF rather than having to go to civilian providers. When the MTF has inadequate specialty services, patients who find civilian care too expensive continue to seek care inappropriately from MTF primary care physicians. The MTF physicians then complain of becoming frustrated at their inability to provide appropriate care.

Resource sharing need not be confined to providing personnel. It can also enhance MTF capability by, for example, providing medical transcription equipment to free up time for medical personnel to see patients, computerized tomography installations, and prostheses for hip replacement and angioplasties.

Some newer agreements and proposals call for multiple types of resources to support major MTF expansion. Enhanced substance-abuse treatment and psychiatric care is an attractive option, especially since this care draws on fewer ancillary services. Currently, most MTFs limit mental health treatment to active-duty personnel, so mental health care accounts for over 30 percent of CHAMPUS expenditures in the CRI area. Proposals to open wards for inpatient mental health and substance-abuse treatment have been made at several MTFs. One MTF estimates that using resource sharing to provide the staff for a 30-bed ward would reduce the $12 million CHAMPUS bill by up to $4 million. Another estimates savings of $1 million.

Another large-scale resource-sharing initiative under discussion would reopen a ward for obstetrical/gynecological care. The ward has been closed for some time and will require both renovation and new equipment, in addition to staffing.

Partnerships: A Lesson for Resource Sharing

Since resource sharing was implemented very recently, our ability to evaluate this important CRI program is limited. However, some of the experiences with partnerships would appear to be applicable to resource sharing as well.

Both types of programs permit MTFs to use CHAMPUS funds to augment their staffs, but partnerships differ from resource sharing in three major ways: (1) partnerships apply only to providers who can bill CHAMPUS, whereas resource sharing can also be used to acquire other resources; (2) partnership providers must file claims, whereas resource-sharing providers are paid directly; and (3) the CRI contractors only consult on partnerships, whereas they directly negotiate resource-sharing agreements.

When the CRI became operational on August 1, 1988, there were 15 active partnership agreements in the demonstration area. FHC became responsible for paying the claims of these partnership physicians. In October 1989, FHC reported 89 partnership agreements covering an unknown number of providers in the CRI demonstration area. While partnerships have enabled MTFs to fill some of the medical needs of their hospitals, they have also created problems.

Partnership physicians sign agreements to treat CHAMPUS eligibles at negotiated fees, usually 60 to 80 percent of the prevailing fees under standard CHAMPUS. This results in savings if additional MTF costs and increased demand for care do not offset the lower fees. The MTFs strongly believe that they can cut CHAMPUS costs by expanding their services. For example, one MTF contends that its partnership obstetricians decreased CHAMPUS costs by $4 million between 1988 and 1989 by increasing deliveries at the MTFs from 80 to 100 per month.

Many MTF staff see other benefits as well. Continuity of care for patients being treated by the partnership physician may improve during the period of the agreement, which is generally one to two years. The partnership agreement can cover a wide range of provider requirements, from a single specialist working a few hours per week to a group of primary physicians who care for 100 to 200 patients per day. Finally, because partnership physicians are not subject to military training exercises and rotation, they

provide the MTFs with stability in medical care delivery, particularly in the previously understaffed area of primary care.

However, as the partnership program has grown, the MTFs are encountering some significant problems. The additional providers are overloading ancillary services such as radiology, pharmacy, laboratory and support staff, nursing, and patient records. Under the military resource allocation system, increased workloads should lead to additional manpower and funding in the next year. However, persistent shortages of skilled medical support personnel and a built-in year's lag combine to prevent the personnel system from functioning smoothly. Limited operating budgets (which fund civilian personnel and supplies), inadequate civil-service wage scales, and the slow military procurement system for major equipment also prevent ancillary departments and support staffs from expanding to support larger provider staffs.

CHAMPUS SERVICE CENTER

There are 27 CHAMPUS Service Centers in the CRI demonstration area—one at each military hospital, and some at clinics. The Service Centers house the HCF referral service and carry out or assist in utilization review, marketing, beneficiary relations, and civilian provider relations. In addition, the centers provide an important liaison to the MTF staffs.

Health Care Finder

The HCF[1] has five functions:

- Improve beneficiary access to primary care and other services.
- Promote the establishment of appropriate routine and referral mechanisms to ensure optimal utilization of MTF facilities and resources.
- Foster coordination of care delivered in the civilian sector.
- Ensure the establishment of systems to inform beneficiaries of access mechanisms and routing and referral procedures.
- Improve continuity of patient care.

[1]The HCF concept in the CRI significantly extends an Air Force initiative, also called the Health Care Finder, that assists beneficiaries in locating civilian providers who accept the CHAMPUS allowable and, in some cases, discount further.

HCF staff are usually registered nurses and triage technicians. The military training of many HCF personnel has been useful in interactions with the CHAMPUS population. As of late 1989, 90 HCFs were operating in the demonstration area.

HCF operations were for many months adversely affected by the inefficiency of the management information system (EAGLE). The EAGLE system was to provide beneficiary information, referral data, and up-to-date provider directories, but the claims processing system, also a part of EAGLE, was plagued with problems. The EAGLE system is now divorced from claims processing, and it is functioning as intended.

The compressed implementation period for the CRI did not allow time for HCF personnel to obtain a working knowledge of standard CHAMPUS regulations, let alone the thorough familiarity with the manuals that is necessary to keep up with the constant changes in these regulations. Also, the HCF did not have enough time to become acquainted with the MTF staff, become familiar with their roles and problems, and exchange views and information on the demonstration.

During the early weeks of CRI operations, HCF activities were largely devoted to dispensing information about CHAMPUS Extra and CHAMPUS Prime (where it was offered), and to enrollment. In the latter part of 1988, as Prime enrollment and Extra usage increased, the HCF began to assume its intended role, authorizing specialty care and channeling patients into appropriate care settings. More recently, involvement with claims processing problems has detracted somewhat from these activities.

HCF referrals have increased from an average of 3,960 per month in the first six months of operation to 7,200 per month in the quarter ending September 30, 1989. Given the military's limited unused capacity, it is perhaps not surprising that only 4.5 percent of these referrals were to MTFs. Of the non-MTF referrals, 88 percent were to the network.

Access to beneficiaries who are referred to civilian providers is necessary for the HCF to channel CHAMPUS beneficiaries to CRI network providers. At one site, when the HCF assumed the referral function, referrals to network providers increased 133 percent.

While a nursing background is considered essential for HCF personnel, a specific knowledge of managed care is also emerging as an important factor. Two of the plans are expanding the HCF role at selected MTFs into utilization management, primarily to conduct prior-authorization reviews for outpatient and inpatient mental health care, non-mental-health hospitalizations, and other specialty referrals. The HCF's central position

between utilization management, the beneficiaries, and the provider network has led to this expanded role, in which the HCFs are working more closely with subcontractor regional and headquarter staffs.

The HCFs are a major liaison to staff at the MTFs. They work closely with the MTF's health-benefits advisor (HBA) and with the military officer who is the point of contact for the CRI demonstration. In addition, some HCF managers are in frequent contact with the MTF commander, which facilitates the effective working relationship that is essential for maximum utilization of the MTF by CHAMPUS eligibles.

Marketing/Enrollment

The marketing effort has been directed toward informing beneficiaries about the benefits for which they are eligible, the conditions for participating in Prime and Extra, and the services offered by the service centers.

Prior to the implementation of the CRI, marketing plans and policies were uniform for all subcontractors. Materials were tailored to the characteristics of the beneficiary population and differing environments of the catchment areas. Similarly, the marketing approach varied to suit the socioeconomic characteristics of the beneficiary population in each area, the competitiveness of the local health provider market, and, to a lesser degree, the availability of MTF care. Much of the early marketing effort was aimed at the general beneficiary population and took the form of:

- Newsletters and other health-oriented materials for Prime enrollees.
- Video presentations to show on bases.
- Print advertisements and radio broadcasts.
- Presentations by contractor staff at base events where CHAMPUS users would be present.
- Health fairs.

As appropriate data from the claims system become available, marketing will be increasingly targeted to users of the standard CHAMPUS program. This approach has a potentially high payoff in reducing CHAMPUS costs. Through targeted marketing, it is hoped that current CHAMPUS users can be reached without encouraging low- or non-users to switch from other sources of care to Prime and Extra programs.

Initial marketing was hampered by delays in DoD approval of marketing literature and by inaccurate addresses of CHAMPUS eligibles. FHC and the plans did not staff the marketing effort as had been anticipated, partly because of the short implementation time frame, which led to staff reassignments for "fire fighting." Marketing was also slowed to match the pace of provider network development and the delayed implementation of Prime in some areas.

In the implementation phase, lack of information on standard CHAMPUS users prevented implementation of the initial plan to target mailing of marketing materials to high-frequency CHAMPUS users. Targeted marketing in the operational phase has been hindered by the continuing unavailability of data from the claims processing system. While the plans have adjusted to a less targeted approach, they have been criticized by MTFs for lack of marketing aggressiveness. This cautious strategy, intended to minimize disruption of non-CHAMPUS users' insurance habits, was often initially misunderstood, and some MTF commanders still believe the CRI should be marketed more widely.

Some health-benefits advisors have accused CRI marketing staff of dispensing misinformation about standard CHAMPUS. Targeted marketing of managed care has been faulted for not presenting the beneficiary with all three available options. Some MTF staff claim that Prime and Extra have been emphasized to the point that beneficiaries are unaware that they may still opt to use standard CHAMPUS. One plan was criticized for not assisting a beneficiary who was not scheduled to stay within the managed-care network. CRI subcontractor staff are also concerned about the MTFs' poor explanation of the CHAMPUS Prime and Extra options. These accusations point up the need for more education of CRI and MTF staff who interact with beneficiaries regarding all three CHAMPUS options.

It is difficult to substantiate the criticism of a lack of a vigorous campaign: 1,500 briefings were given to 45,000 beneficiaries during the first six months of operation. This activity followed a mailing of 500,000 letters. In response to inquiries based on these letters, 96,000 application forms were mailed to beneficiaries. Of these beneficiaries, 12 percent enrolled in CHAMPUS Prime, and there has been substantial use of CHAMPUS Extra.

Beneficiary Relations

MTF staff have indicated that, from their perspective, beneficiaries are satisfied with both access and quality of care provided by the Prime and Extra options. They are, however, clearly upset by incidents that have resulted from the failure of the claims processing system to pay provider claims. In fact, the plans have had to hire more beneficiary representatives to handle the inquiries and complaints of Prime enrollees. Nevertheless, some of the burden has fallen on the MTFs.

Some beneficiaries have also complained about mental health care review. It is difficult at this point to sort out whether the problems are the result of the enforcement of standard CHAMPUS regulations or are also part of the claims processing problem.

The MTFs have indicated that the plans need to better inform beneficiaries about the requirement for Prime enrollees to use the MTF for specialty care when it is available there. Beneficiaries have come to believe that many medical services will be unavailable or difficult to access at the MTF, since medical resources have been depleted at military hospitals for several years. Those who seek care in the civilian sector without permission are understandably upset when payment is denied.

The military Medicare population's access to MTF care is a major concern to MTF personnel. Significant numbers of over-65 military retirees use the MTFs, either because they cannot afford the Medicare deductible and copayment or because they prefer to receive their medical care at an MTF—seeing this care as a "right" that they have earned. MTF staff, both administrative and professional, have indicated their concern that CRI and partnerships will redirect the MTFs' medical facilities toward the treatment of CHAMPUS beneficiaries, decreasing the over-65 eligibles' ability to obtain care. Some have indicated that they plan to set aside some appointments for the Medicare group, if necessary, but they would like to have resource-sharing and partnership providers also see Medicare patients, and even active-duty patients. Provider payments would then be made from the MTFs' operating budget or CHAMPUS in proportion to the workload for each beneficiary group. The CRI contractor's sensitivity to this issue seems essential for amicable working relations with MTF administrators and physicians.

Provider Relations

Provider Relations staff are usually located in the plans' headquarters offices. Their function is to maintain a balanced network of providers for beneficiaries, to educate the providers in managed-care concepts, to answer their questions, and to see that their claims are paid.

The problems of claims processing have completely dominated the relations of the plans with their provider networks. Once the extent of the claims processing problems became apparent, many providers received payments on account based on the charges they billed. Still, it was impossible to determine how much of which claims had been paid. Some providers were unsuccessful in obtaining payments and placed their patients' unpaid bills with collection agencies. Providers—particularly mental health providers—in northern California are disillusioned with FHC and its claims processing system, to the point where some refuse to see any CHAMPUS patients. Some providers abandoned the CRI network, but others have been added. Despite these problems, the plans (and our own analysis) indicate that network coverage is adequate. However, the extra effort of maintaining and reconstituting the networks was costly for the plans.

UTILIZATION MANAGEMENT

The prospective, concurrent, and retrospective review of inpatient care is proceeding as planned. The greatest challenge is reviewing cases in nonnetwork hospitals, where plan staff are more concerned about the quality of care delivered and the appropriateness of procedures performed.

Utilization management focuses primarily on preventing the unnecessary use of expensive mental health care. Mental health care represents a disproportionate amount of CHAMPUS use—according to plan staff, 50 percent of mental health inpatient days are for adolescent care, whereas major depression, bipolar disorder, and psychosis represent only a small percentage of use. The high utilization levels probably result from the generous benefits CHAMPUS provides. In 1987, approximately 20 percent of CHAMPUS expenditures were on mental health. Approximately two-thirds of the expenditures were for inpatient services, half of them for adolescent care and one-third for outpatient treatment. All three plans are using preauthorization, mental health provider education, planned treatment programs, and case monitoring to evaluate and prevent unnecessary—and, in the plans' view, improper—mental health services use.

This extensive review program is new to CHAMPUS, and the program's experiences should be of interest to other payors as well.

The military bases' Family Service Centers can complicate the management of mental health care. These centers are outside the health care system. One center refers 200 CHAMPUS-eligible mental health patients per month to providers who may be outside of the CRI-managed care system. Another practice that circumvents managed care, drives up costs, and is therefore a problem is the waiving by nonnetwork providers of the patient's cost share. This fraudulent practice is particularly prevalent in mental health care.

Utilization management is also concerned with the misuse of emergency rooms. Such misuse seems unusually widespread because CHAMPUS beneficiaries over the years have used the MTFs' emergency rooms when access to outpatient clinics was poor. Letters to beneficiaries who have inappropriately used civilian emergency rooms explain what they should be used for and suggest that claims for nonemergencies may not be paid in the future. This stricter application of managed care could, of course, generate complaints to the MTFs.

MTF RELATIONS

Administrative Staff

Recent MTF visits revealed a positive working relationship between the plans' staffs and the MTF commander and administrative staff. On earlier visits, some administrative staffs were found to have only a cursory understanding of and little experience with the CRI program. The delay of resource sharing and the claims processing problem that slowed many other CRI operations also delayed the growth of MTF relations.

Aside from resource sharing and the claims issue, however, delays and problems in the early operational phase of the CRI were really no surprise, considering how many people had to develop a working knowledge of a complicated new concept and work together to implement it. For instance, the role of the MTF as a primary care provider for Prime enrollees was sometimes misunderstood by MTF staff. As late as February 1989, MTF medical directors and staff were uncertain about their obligations as primary care providers or about the number of beneficiaries who had selected the MTF as their primary care provider.

The recent reorganization of FHC caused some concern to MTF commanders in northern California. Staff turnover—some intentional and some not—was occurring as FHC reorganized its commercial and government divisions to remove duplicate functions. MTF staff also had to adjust to some new service center personnel and arrangements. The situation is now stable, and MTFs are comfortable with the new organization structure.

Across all areas, the relationships between CRI and MTF staffs are expanding as more and more service area managers, HCFs, and plans' staff attend MTF meetings. In some cases, plans' staff have become an integral part of the planning process at the MTF. The cooperation of the plans is reported as excellent, and the commanders are enthusiastic about the future of the CRI.

Military Providers

Plans' staff have begun to work more closely with the military physicians and other providers to alleviate their concerns about the CRI. Applying the military's extensive quality assurance program to civilian providers working in the MTF consumes scarce military physicians' time. Quality assurance review of civilian providers also raises issues of liability, credentialing, quality control, and record review. For example, MTF providers are asking questions about where responsibility lies when a resource-sharing physician brings in his or her own nurse. Liability is only one of the areas where protocols are needed to provide guidance for MTF, subcontractor, and civilian provider staffs. The subcontractors, aware of these issues, have requested MTF medical representation on the quality assurance committees. This liaison activity should be helpful in fostering a good working relationship between the MTFs and the subcontractors.

The effect of the CRI on the MTFs' ancillary services, discussed above, is of primary concern to nearly all of the staff we interviewed in these support areas. Some ancillary departments indicated they would not accept referrals for tests, etc., from civilian doctors.

The plans are continuing to educate MTF providers about CRI operations and encouraging them to refer patients through the HCF for enrollment in Prime or placement with Extra providers. Unless MTF providers are confident of the quality of medical care the providers in the network deliver, they will be reluctant to send their patients to the HCF or to seek the medical care they need through the CRI-managed health care plans.

Thus, regular communication between Service Center staff and MTF providers is essential for education and problem solving. Reciprocal visits between MTF and civilian network hospitals to review each other's facilities and become acquainted with staff are taking place at several MTFs.

Health Benefits Advisor

The HBAs are employees of the MTF. Their primary function is to assist CHAMPUS and Medicare beneficiaries to obtain medical care in the civilian community when that care is not available at the MTF. The HBAs generally have established extensive contacts in the medical care community. Thus, while the CHAMPUS Service Center has responsibility for the Prime enrollees and Extra users, the HBAs serve in a similar capacity as representatives for beneficiaries receiving care under the standard CHAMPUS program. In most MTFs, they handle the nonavailability statements issued by the MTF commander when inpatient care is unavailable in the MTF.

Since the HBAs are a primary source of referrals for beneficiaries, they should routinely send beneficiaries to the CHAMPUS Service Center, where they can be informed of the Prime and Extra options. A close working relationship between the HCF and the HBAs is important because (1) the HBA is the focal point for beneficiaries seeking MTF care, and (2) the CRI, to be successful, must channel beneficiaries into its managed-care network.

In many MTFs, the collaboration between the HCF and the HBA has not been as effective as was envisioned. The HBAs have not always understood that they were to be the CRI staffs' source of information on the standard CHAMPUS program and benefits. In some cases, they resented the additional work of being a reference source.

The CRI has also served as a catalyst for other complaints, some of which pre-dated the demonstration project. At a CRI Conference in San Diego in October 1989, the HBAs expressed concern with their job status and the CRI. They are dissatisfied primarily with the lack of a standard job description and uniform job rating, the need to keep up with frequent CHAMPUS changes, the additional workload that the CRI has caused them, the lack of recognition by both MTF and CRI staffs of the HBAs' role in beneficiary care, poor orientation on CRI operations, and lack of CRI contacts for information. Thus, some of the complaints were CRI issues and some were not.

Since HBAs process statements of MTF service nonavailability, their cooperation is important as an avenue for obtaining access to standard CHAMPUS users. If these

beneficiaries are not channeled to the HCF, the HBAs are left to explain the CRI options. They are usually ill equipped to do so, misinformation is dispensed, and the system breaks down.

The HBAs have requested contacts for claims processing issues. They have been promised that an intermediary would be hired, but this has not happened yet. The previous fiscal operation had such a person, and the HBAs feel they received better service from that system.

Most HBAs feel that they have satisfactory personal relationships with the plans' contractor personnel. They also uniformly support the concept of the CRI and its goals. Some HBAs are secure in their jobs and have a better sense of their role in relation to the CRI staff. These HBAs' working relations with the Service Center are good, and they are learning managed-care concepts from the normal flow of work-related issues.

Appendix B

CALCULATION OF 13-MONTH COMPLETION FACTORS FOR CRI AND NON-CRI CLAIMS DATA

Let $E^{n}_{t,t+i}$ and $E^{c}_{t,t+i}$ be the expenditures recorded in the QRDF in month t + i for services provided in month t(t = 1, . . . , 6 and i = 0, . . . , I) in non-CRI areas and CRI areas, respectively. Then we calculated for each month (t) in the six-month study period, the percent increase in the total expenditures recorded to date in the jth succeeding month, $P^{n}_{t,t+j}$ $P^{c}_{t,t+j}$ as follows:

$$p^{n}_{t,t+j} = \frac{\sum_{i=0}^{j} E^{n}_{t,t+i}}{\sum_{i=0}^{j-1} E^{n}_{t,t+i}}$$

$$p^{c}_{t,t+j} = \frac{\sum_{i=0}^{j} E^{c}_{t,t+i}}{\sum_{i=0}^{j-1} E^{c}_{t,t+i}}$$

This calculation was performed for up to 36 months after each month of service in the pre-CRI (1987) study period and from seven to 12 months after each month of service in the post-CRI (1989) study period.

The monthly percentage increases for the control areas were very similar to the 1987 increases for all areas. Therefore, for all non-CRI services (1987 and 1989), we based our completion factors on the combined average rates of increase observed in 1987 for all areas:

$$P^{n}_{j} = \frac{1}{6} \sum_{t,t+j}^{6} \frac{1}{2}[p^{n}_{t,t+j} + p^{c}_{t,t+j}] \qquad \text{all t in 1987}$$

For CRI services in 1989, we based our completion factor on the average for CRI areas only in 1989. For up to seven months after the date of service, we could estimate completion rates for all six months of service (April through September). For the eighth through twelfth succeeding months, our completion rates are based on a decreasing

number of months of service. Thus, by the twelfth month, we could estimate completion rates only for services provided in the earliest month of April.

$$P_j^c = \frac{1}{6} \sum_{t=1}^{6} p_{i,t+j}^c \qquad \text{all t in 1989, j} = 0, \ldots, 7$$

$$P_j^c = \frac{1}{13-j} \sum_{t=1}^{13-j} p_{i,t+j}^c \qquad \text{all t in 1989, j} = 8, \ldots, 12$$

For each of the non-CRI and CRI study months, the cumulative increase (C) in expenditures recorded between January of the following year (the first month after cutoff date we used) and the twelfth succeeding month is:

$$C_t^n = \prod_{j=10-t}^{12} p_j^n$$

$$C_t^c = \prod_{j=10-t}^{12} p_j^c$$

Thus, for example, the cumulative increase for April services is calculated as the product of the increases in the following January, which is the ninth succeeding month, through the twelfth succeeding month. For services provided in the last study month, September, the following January is only the fourth succeeding month and increases for the fourth through twelfth months must be multiplied.

Our final step, taken to simplify the adjustment of the claims data for completion, was to average the cumulative increases estimated for the six non-CRI months and the six CRI months:

$$C^n = \frac{1}{6} \sum_{t=1}^{6} C_t^n$$

$$C^c = \frac{1}{6} \sum_{t=1}^{6} C_t^c$$

REFERENCES

Hosek, S., et al., *Plan for an Evaluation of the CHAMPUS Reform Initiative*, RAND, N-2647-HA, July 1987.

Hosek, S., et al., *Preliminary Results from an Evaluation of CHAMPUS Reform Initiative*, RAND, N-3069-HA, January 1990.

Morlock, L. L., "Recognition and Treatment of Mental Health Problems in the General Health Care Sector," in C. A. Taube et al. (eds.), National Institute of Mental Health, *The Future of Mental Health Services Research,* DHHS Pub. No. (ADM)89-1600, 1989.

Peterson, C. E., et al., *Aggregated Claims Series, Volume 2: Codebooks for Fee-for Service Visits—Outpatient, Inpatient, and Dental,* RAND, N-2360/2-HHS, June 1986.